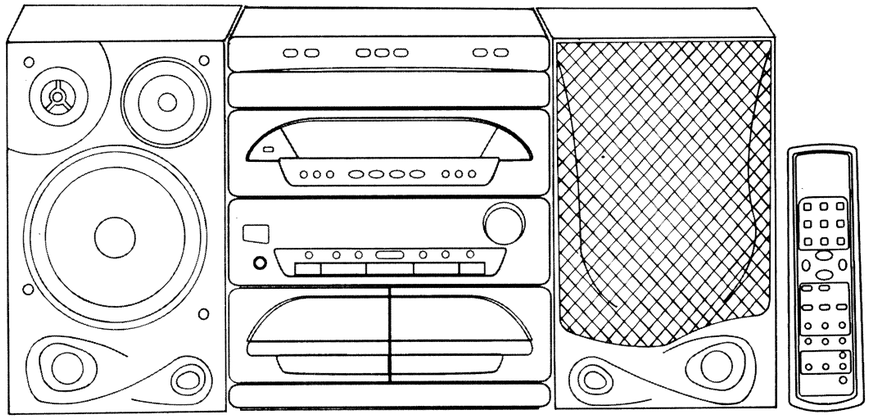
GoldStar

COMPACT DISC STEREO SYSTEM
SERVICE MANUAL

COMPACT disc DIGITAL AUDIO



MODEL : FFH-393A/L, FE-393E

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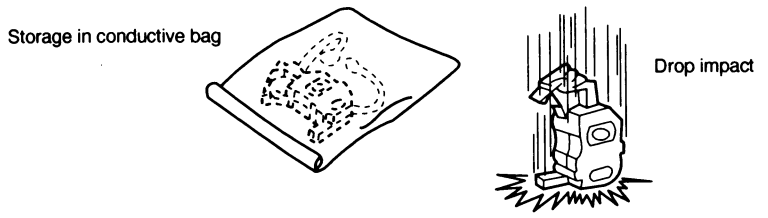
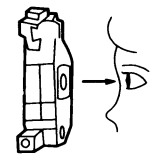
SERVICING PRECAUTIONS

NOTES REGARDING HANDLING OF THE PICK-UP

(1) Notes for transport and storage
1) The pick-up should always be left in its conductive bag until immediately prior to use.
2) The pick-up should never be subjected to external pressure or impact.

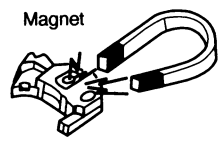


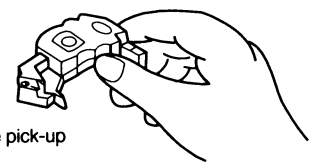
(2) Repair notes
1) The pick-up incorporates a strong magnet, and so should never be brought close to magnetic materials.
2) The pick-up should always be handled correctly and carefully, taking care to avoid external pressure and impact. If it is subjected to strong pressure or impact, the result may be an operational malfunction and/or damage to the printed-circuit board.
3) Each and every pick-up is already individually adjusted to a high degree of precision, and for that reason the adjustment point and installation screws should absolutely never be touched.
4) Laser beams may damage the eyes!
Absolutely never permit laser beams to enter the eyes!
Also NEVER switch ON the power to the laser output part (lens, etc.) of the pick-up if it is damaged.

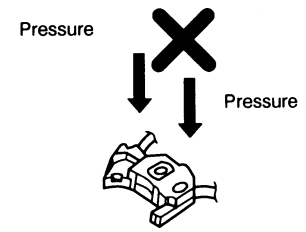


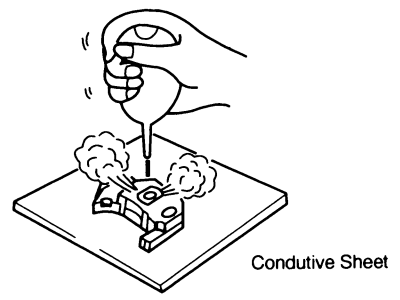
NEVER look directly at the laser beam, and don't let contact fingers or other exposed skin.

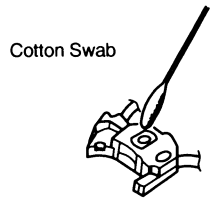
5) Cleaning the lens surface
If there is dust on the lens surface, the dust should be cleaned away by using an air bush (such as used for camera lens). The lens is held by a delicate spring. When cleaning the lens surface, therefore, a cotton swab should be used, taking care not to distort this.









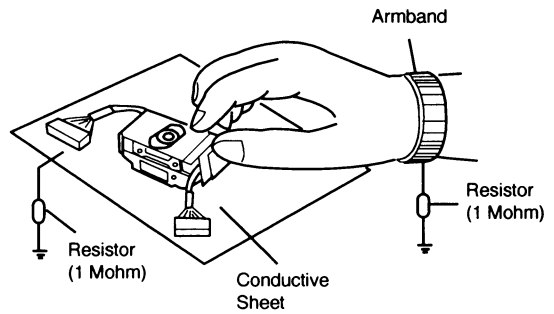


6) Never attempt to disassemble the pick-up.
Spring by excess pressure. If the lens is extremely dirty, apply isopropyl alcohol to the cotton swab. (Do not use any other liquid cleaners, because they will damage the lens.) Take care not to use too much of this alcohol on the swab, and do not allow the alcohol to get inside the pick-up.

NOTES REGARDING COMPACT DISC PLAYER REPAIRS

(1) Preparations
1) Compact disc players incorporate a great many ICs as well as the pick-up (laser diode). These components are sensitive to, and easily affected by, static electricity. If such static electricity is high voltage, components can be damaged, and for that reason components should be handled with care.
2) The pick-up is composed of many optical components and other high-precision components. Care must be taken, therefore, to avoid repair or storage where the temperature or humidity is high, where strong magnetism is present, or where there is excessive dust.

(2) Notes for repair
1) Before replacing a component part, first disconnect the power supply lead wire from the unit.
2) All equipment, measuring instruments and tools must be grounded.
3) The workbench should be covered with a conductive sheet and grounded.
When removing the laser pick-up from its conductive bag, do not place the pick-up on the bag.
(This is because there is the possibility of damage by static electricity.)
4) To prevent AC leakage, the metal part of the soldering iron should be grounded.
5) Workers should be grounded by a armband (1MΩ).
6) Care should be taken not to permit the laser pick-up to come in contact with clothing, in order to prevent static electricity changes in the clothing to escape from the armband.
7) The laser beam from the pick-up should NEVER be directly facing the eyes or bare skin.



ESD PRECAUTIONS

Electrostatically Sensitive Devices (ESD)

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ESD devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

3. Use only a grounded-tip soldering iron to solder or unsolder ESD devices.

4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESD devices.

5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESD devices.

6. Do not remove a replacement ESD device from its protective package until immediately before you are ready to install it. (Most replacement ESD devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive materials).

7. Immediately before removing the protective material from the leads of a replacement ESD device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   CAUTION : BE SURE NO POWER IS APPLIED TO THE CHASSIS OR CIRCUIT, AND OBSERVE ALL OTHER SAFETY PRECAUTIONS.

8. Minimize bodily motions when handling unpackaged replacement ESD devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ESD device).

SPECIFICATIONS

1. AMP SECTION

① Power Output (6Ω, 2 channel, T.H.D. 10%) ····· 20W+20W
② T.H.D. ····· 0.2%
③ Frequency Response (3dB down) ····· 20Hz~30kHz
④ Signal-to-noise Ratio ····· 85dB
⑤ Input Sensitivity AUX ····· 250mV
⑥ Channel Difference 1kHz ····· 1dB

2. TUNER SECTION

1) FM

① Frequency Range ····· 87.5MHz~108MHz
② Intermediate Frequency ····· 10.7MHz
③ Sensitivity 90.1MHz/98.1MHz/106.1MHz ····· 8dB
④ Signal-to-noise Ratio 98.1MHz (Mono/Stereo) ····· 70dB/65dB
⑤ Image Rejection 106.1MHz ····· 40dB
⑥ IF Rejection 90.1MHz ····· 80dB
⑦ Distortion 98.1MHz (Mono/Stereo) ····· 0.3%/0.5%
⑧ Frequency Response (-3dB) ····· 30Hz~12,000Hz
⑨ Separation 100kHz/1kHz/10kHz ····· 30dB/35dB/30dB

2) MW (AM)

① Frequency Range ····· 522kHz~1,611kHz
② Intermediate Frequency ····· 450kHz
③ Usable Sensitivity 603kHz/1,008kHz/1,404kHz ····· 50dB
④ Image Rejection 1,404kHz ····· 30dB
⑤ IF Rejection 603kHz ····· 40dB
⑥ Selectivity 1,008kHz ····· 35dB
⑦ Signal-to-noise Ratio 1,008kHz ····· 40dB
⑧ Distortion 1,008kHz ····· 1%
⑨ Frequency Response (-6dB) ····· 80Hz~2,300Hz

3) LW - Option

① Frequency Range ····· 144kHz~281kHz
② Intermediate Frequency ····· 450kHz
③ Usable Sensitivity 164kHz/200kHz/254kHz ····· 60dB
④ Image Rejection 254kHz ····· 30dB
⑤ IF Rejection 164kHz ····· 50dB
⑥ Selectivity 200kHz ····· 30dB
⑦ Signal-to-noise Ratio 200kHz ····· 35dB
⑧ Distortion 200kHz ····· 2%
⑨ Frequency Response (-6dB) ····· 80Hz~2,300Hz

3. DECK SECTION

① Tape Speed (MTT-111) High Speed/Normal Speed ····· 8.55cm/sec/4.75cm/sec
② Wow and Flutter (MTT-111) ····· 0.25%
③ Fast Forward and Rewind Time (C-60) ····· 120sec
④ Frequency Response (4dB Range) ····· 250Hz~10kHz
⑤ Signal-to-noise Ratio ····· 45dB
⑥ Distortion (Playback/Record) ····· 1%/2%
⑦ Crosstalk ····· 60dB
⑧ Separation ····· 35dB
⑨ Erase Ratio ····· 65dB

4. CDP SECTION

① Frequency Response (40Hz~18kHz) ····· ±0.5dB
② Signal-to-noise Ratio ····· 80dB
③ Dynamic Range ····· 80dB
④ T.H.D. ····· 0.2%
⑤ Separation ····· 50dB
⑦ Access Time Short/Long ····· 2sec/6sec

5. GENERAL

① Power Requirement ····· Refer to the back panel of unit
② Power Consumption ····· 95W
③ Dimension (Net : W×H×D) ····· 270×326×430 (mm)
④ Weight (Net) ····· 6.7kg

NOTE : Specifications are subject to change without notice in the course of product improvement.

ADJUSTMENTS

This set has been aligned at the factory and normally will not require further adjustment. As a result, it is not recommended that any attempt is made to modificate any circuit. If any parts are replaced or if anyone tampers with the adjustment, realignment may be necessary.

IMPORTANT

1. Check power-source voltage.
2. Set the function switch to band being aligned.
3. Turn volume control to minimum unless otherwise noted.
4. Keep the signal input as low as possible to avoid AGC and AFC action.

TEST & ADJUSTMENT POINT

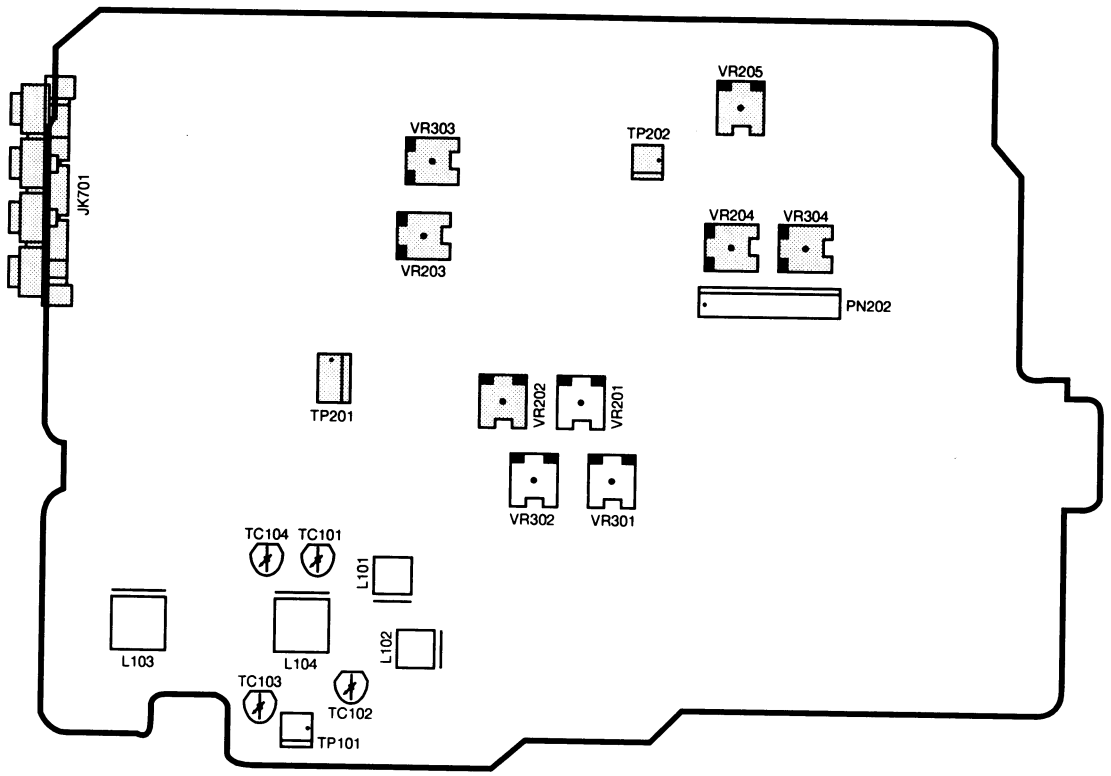


Figure 1. Main P.C.Board

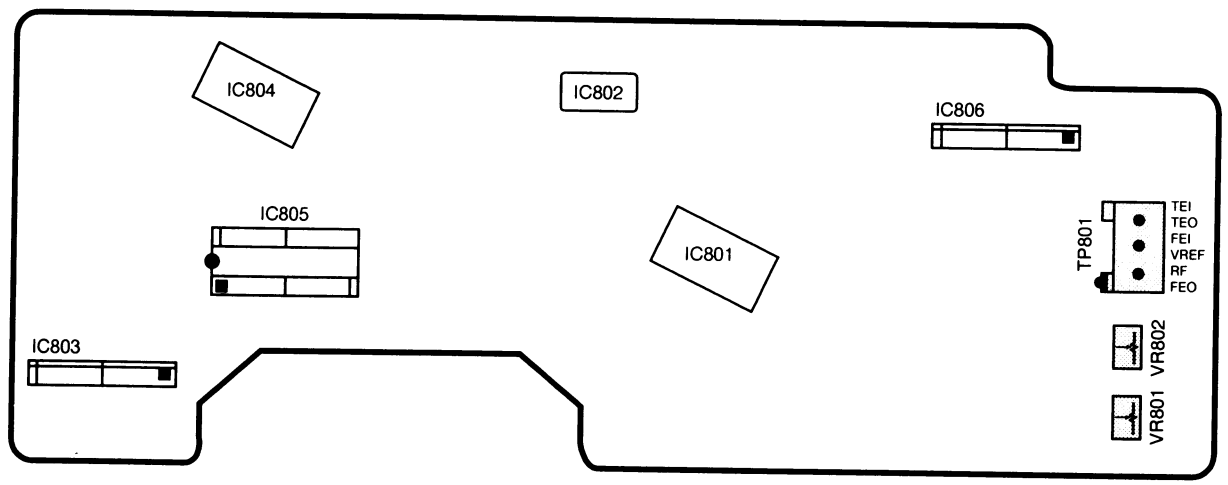
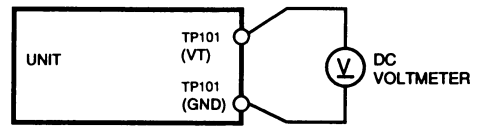


Figure 2. CD P.C.Board

TUNER ADJUSTMENT

1. MW (AM) COVER ADJUSTMENT

DC Voltmeter .....Connect to TP101 (VT) and TP101 (GND).



Step	Frequency	Adjust for	Adjustment
1	522kHz	1.4V±0.2V	L101
2	1611kHz	8.4V±0.2V	TC101
3	Repeat steps 1 and 2 several times.		

Figure 3. MW (AM) Cover Adjustment Connection Diagram

2. MW (AM) TRACKING ADJUSTMENT

Signal Generator .....Connect to MW (AM) antenna coil through a loop antenna.
Adjust for the indication of electronic voltmeter and the waveform of oscilloscope to be maximum.

Step	Band	Frequency	Adjust for	Adjustment
1	MW (AM)	603kHz	Maximum Sensitivity	L104
2		1404kHz	Maximum Sensitivity	TC104
3	Repeat steps 1 and 2 several times			

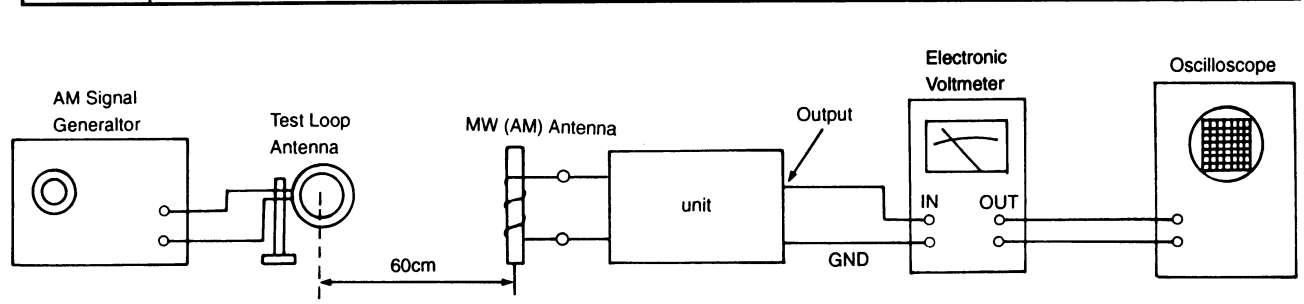
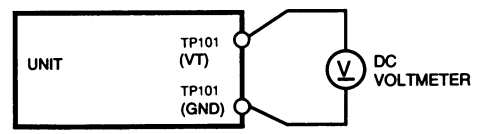


Figure 4. MW (AM) Tracking Adjustment Connection Diagram

3. LW COVER ADJUSTMENT - Option

DC Voltmeter .....Connect to TP101 (VT) and TP101 (GND).



Step	Frequency	Adjust for	Adjustment
1	153kHz	2.2V±0.2V	L102
2	281kHz	6.2V±0.2V	TC102
3	Repeat steps 1 and 2 several times.		

Figure 5. LW Cover Adjustment Connection Diagram

4. LW TRACKING ADJUSTMENT - Option

Signal Generator - - - - - - Connect to LW antenna coil through a loop antenna.
Adjust for the indication of electronic voltmeter and the waveform of oscilloscope to be maximum.

Step	Band	Frequency	Adjust for	Adjustment
1	LW	164kHz	Maximum Sensitivity	L103
2		254kHz	Maximum Sensitivity	TC103
3	Repeat steps 1 and 2 several times			

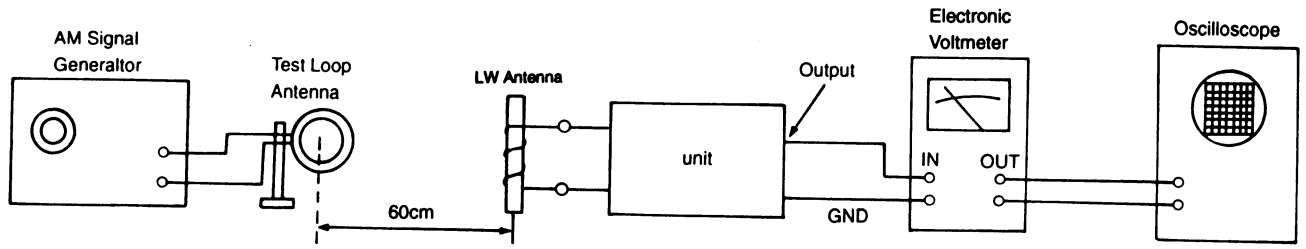


Figure 6. LW Tracking Adjustment Connection Diagram

TAPE DECK ADJUSTMENT

1. AZIMUTH ADJUSTMENT

Deck Mode	Test Tape	Test Point	Adjust for	Adjustment	Remark
Playback	MTT-114	Line Out	Head screw	R/L Maximum	Forward : Lefthand side screw Reverse : Righthand side screw

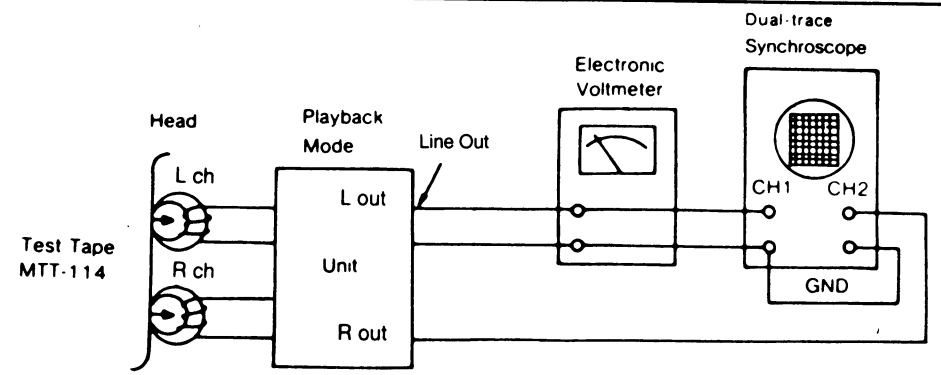


Figure 7. Azimuth Adjustment Connection Diagram

2. MOTOR SPEED ADJUSTMENT

Item	Deck Mode	Test Tape	Test Point	Adjustment	Adjust for	Remark
Normal Speed	Playback	MTT-111	Line Out	VR205	3kHz±0.5%	
High Speed	Playback	MTT-111	Line Out	VR205	5.4kHz±0.5%	TP202 short circuit

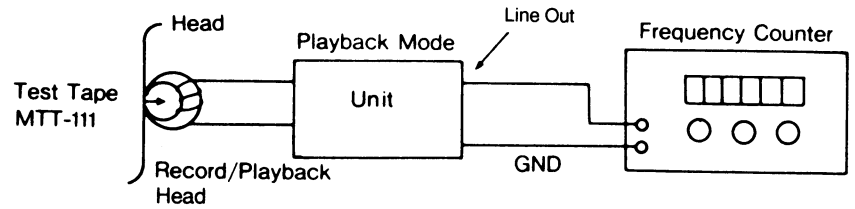


Figure 8. Motor Speed Adjustment Connection Diagram

3. PLAYBACK LEVEL ADJUSTMENT

Deck Mode	Test Tape	Test Point	Adjustment	Adjust for	Remark
Playback	MTT-150	Dolby Point (TP201)	A:VR202, VR302 B:VR201, VR301	580mV±1dB	After adjusting in forward, confirm the specification in reverse mode.

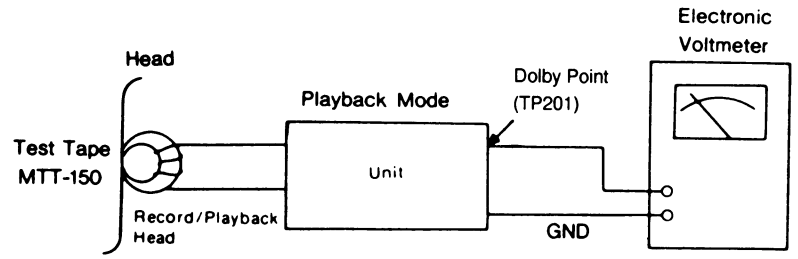


Figure 9. Playback Level Adjustment Connection Diagram

4. RECORD BIAS ADJUSTMENT

Deck Mode	Test Tape	Test Point	Adjustment	Adjust for
Rec/Pause	MTT-5561	Erase Head Wire (PN202)	L205	95kHz±5kHz

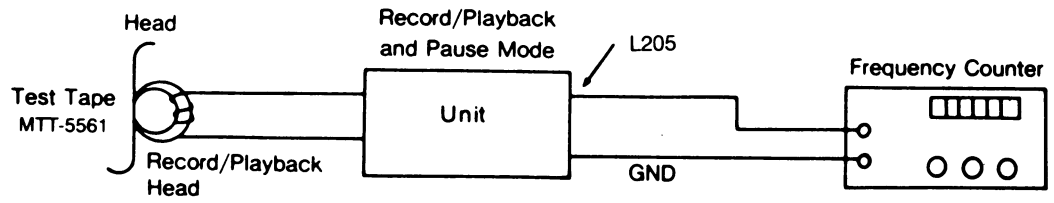


Figure 10. Record Bias Adjustment Connection Diagram

5. RECORD LEVEL ADJUSTMENT

Deck Mode	Test Tape	Test Point	Adjustment	Input	Adjust for	Remark
R/P→PB	MTT-5511 MTT-5561	Dolby Point (TP201)	VR203 VR303	100mV (on AUX)	±0.5dB	• Dolby OFF • After adjusting in MTT-5511, confirm in MTT-5561.

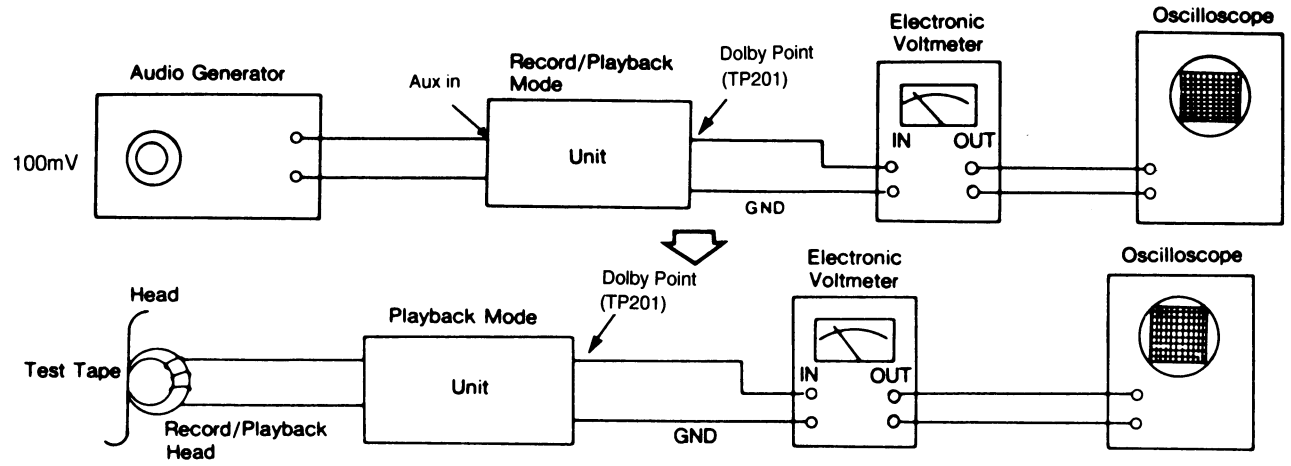


Figure 11. Record Level Adjustment Connection Diagram

6. BIAS ADJUSTMENT

Deck Mode	Test Tape	Test Point	Adjustment	Input	Adjust for	Remark
R/P→PB	MTT-5511 MTT-5561	Dolby Point (TP201)	VR204 VR304	20mV (on AUX)	Adjust for the response of 1kHz/10kHz flat	After adjusting in MTT-5511, confirm in MTT-5561.

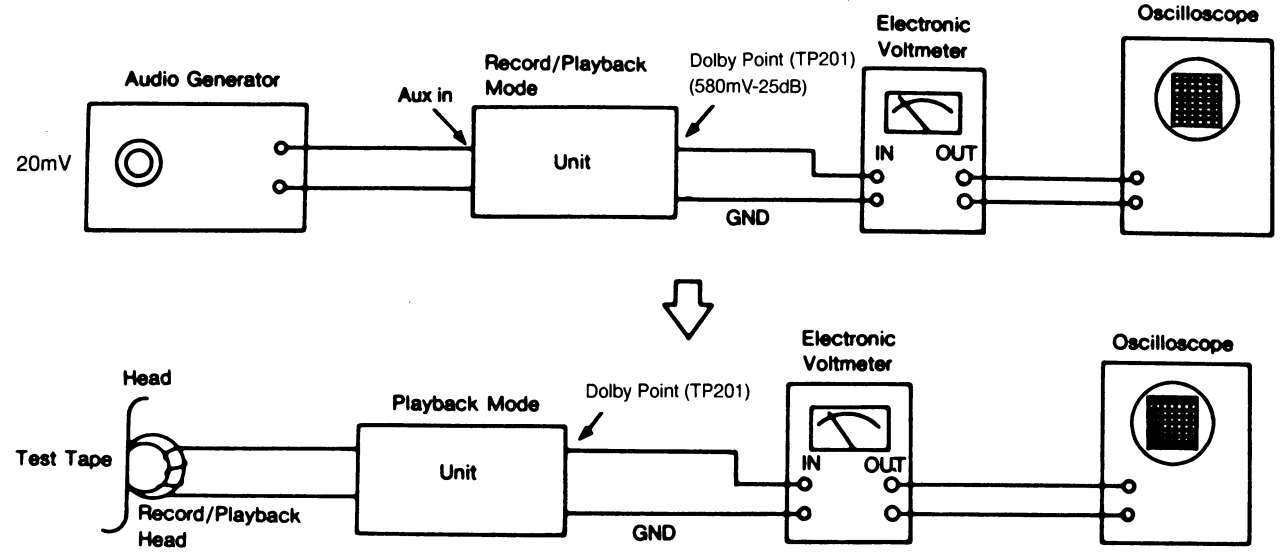


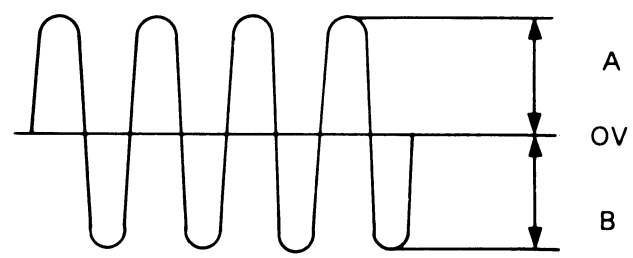
Figure 12. Bias Adjustment Connection Diagram

CDP ADJUSTMENT

1. Before adjusting, preset adjustment potentiometers VR801 and VR802 center.

2. TRACKING BALANCE ADJUSTMENT

1) Connect the oscilloscope to TP801(Pin ⑤ -TEO) and TP801 (Pin ③ -Vref).
2) Playback the 12th selection of the test disc(YEDS-18).
3) Short-circuit TP801 (Pin ⑥-TEI) and TP801 (Pin ③-Vref).
4) Adjust VR802 so that the amplitude above and below the zero DC line becomes equal (amplitude A=B).



A = B

3. FOCUS OFFSET ADJUSTMENT (You have to use 10:1 prove)

1) Connect oscilloscope to TP801(Pin ② -HF) and TP801(Pin ③ -Vref).
2) Put a test disc into unit and playback the unit.
3) Adjust VR801 so that eye pattern becomes clear and waveform (Vp-p) is maximum.
4) Stop mode.
5) Connect oscilloscope to TP801(Pin ① -FEO) and TP801(Pin ③ Vref).
6) Confirm the oscilloscope reading
   i) Less than 200mV—— OK
   ii) More than 200mV—— readjust SR801 200mV.

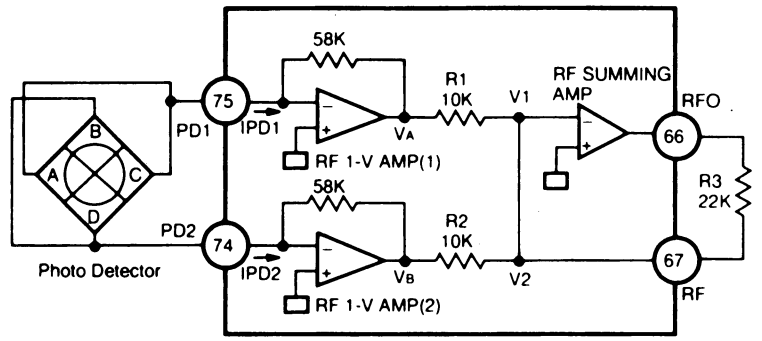
CIRCUIT DESCRIPTIONS

1. RF AMP BLOCK

(1) DESCRIPTION

The KA9220 is designed for 3-spot type optical pick-up assembly. The photo detector is composed of 6 light sensor (A through F). The photo detector A, B, C and D detect audio modulation signal on the disc and generate focus error signal.
The E and F photo detector generate tracking error signal.

(2) RF AMPLIFIER



RF I-V AMP (1) and RF I-V AMP (2) are converted current of PD1 (A+C) and PD2 (B+D) through the 58kohm internal resistor into Voltage.
Furthermore, it is added to RF Summing amplifier.
This signal (A+B+C+D) is outputed from RFO (Pin 66).
The output Voltage is as follow.

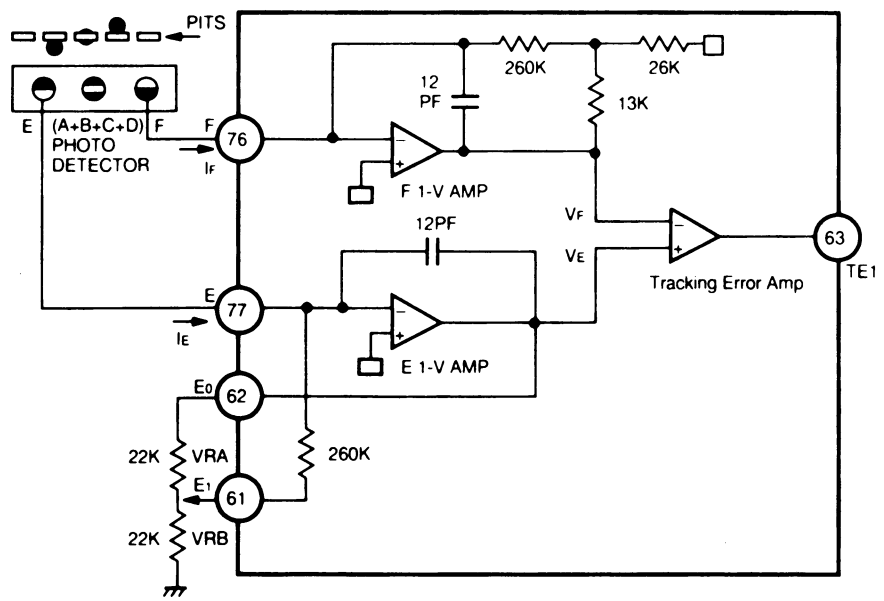
$V_{RF} = -R3 \times (iPD1 + iPD2)$

$= -R3 \times (\frac{V_1}{R_1} + \frac{V_2}{R_2})$

$= -22K \times (\frac{V_1}{10K} + \frac{V_2}{10K})$

$= -2.2 \times (V_1 + V_2)$

(3) TRACKING ERROR AMPLIFIER



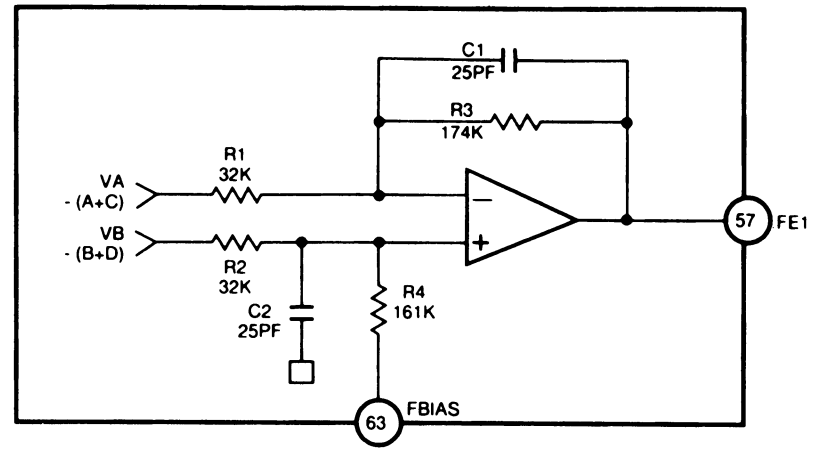
The output of photo detector F is directed to the (−) input of F I-V AMP and out of photo detector E is directed to the (−) input of E I-V AMP.
These input signals are current.
E I-V AMP and F I-V AMP are converted into voltage from the current signal. When correct tracking, two input (V_F, V_E) Signals are equal. The occurrence of tracking error is due to difference between F I-V AMP output and E I-V AMP output.

$V_F = I_F \times \left[(\frac{260K \times 13K}{26K}) + 273K \right] = I_F \times 403K$

$V_E = I_E \times \left[(260K \times \frac{V_{RA}}{V_{RB}} + 22K) + (V_{RA} + 260K) \right]$

Accordingly, $V_{TE1} = (I_E - I_F) \times 1{,}290K$

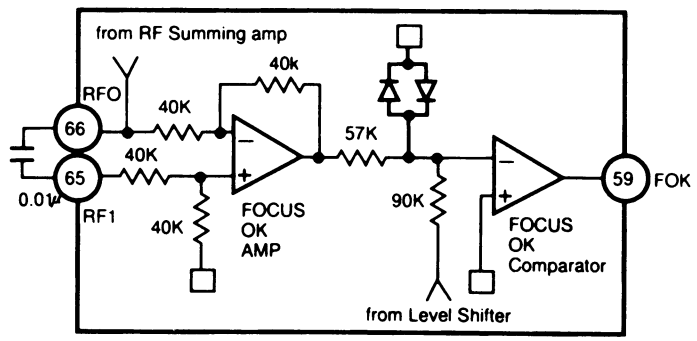
(4) FOCUS ERROR AMPLIFIER



The focus error amp is the difference between RF I-V AMP (1) output V_A and RF I-V AMP (2) output V_B.
This two ($-V_A$, V_B) signals are each applied to the (−) and (+) input of focus error amp.
As the result of differential voltage, Focus error signal is appeared at FE1 Pin (Pin 57).
This FE1 Output Voltage (low frequency) becomes (A+C)−(B+D), as follow $V_{FE1} = R_1/R_3 (V_B - V_A)$.
The focus error voltage is directed to the focus servo block, to maintain optimum focusing at all times.

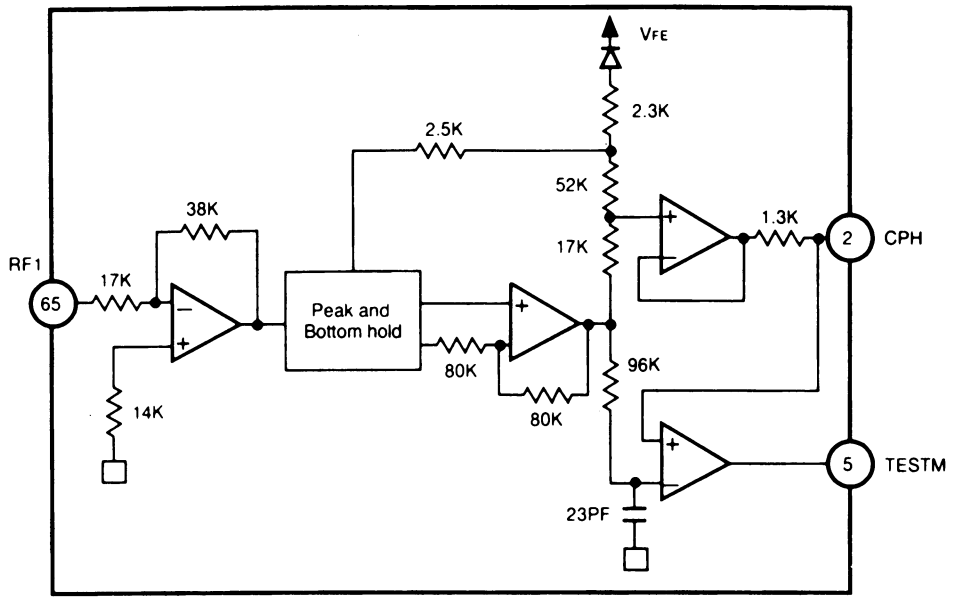
(5) FOCUS OK GENERATION CIRCUIT

The focus OK circuit generates a timing window to monitor focus search status of focus servo.
When RFO (Pin 66) voltage is more than −0.37V, the focus OK circuit is inverted. Time constant of HPF in EFM comparator and in mirror circuit and that of LPF in focus OK circuit are determined by Capacitor (0.01μF) between RF1 and RFO.



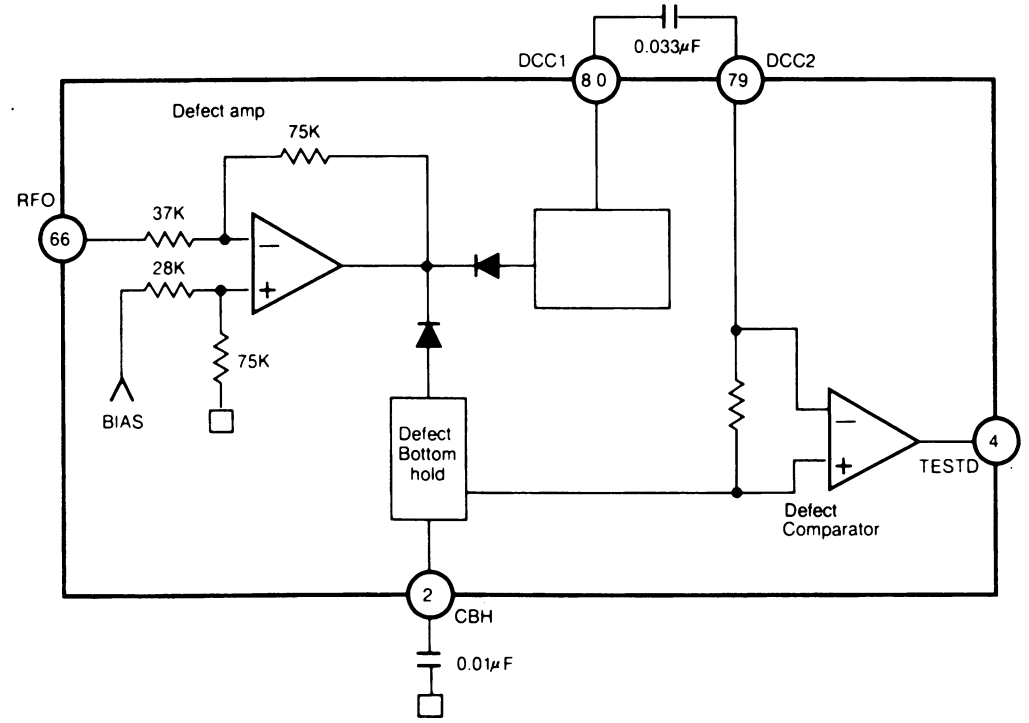
(6) MIRROR CIRCUIT

After RF input signal is amplified by mirror amp, it is held in bottom and peak hold circuit. Such a hold is determined by the time constant. Envelope signal A (demodulated to DC) is two-thirds of the peak value of this signal the time constant of A signal is held when it is larger than that of B signal.
Therefore, mirror output is; Low at track on disc, High at between tracks on disc, High when detect is detected.



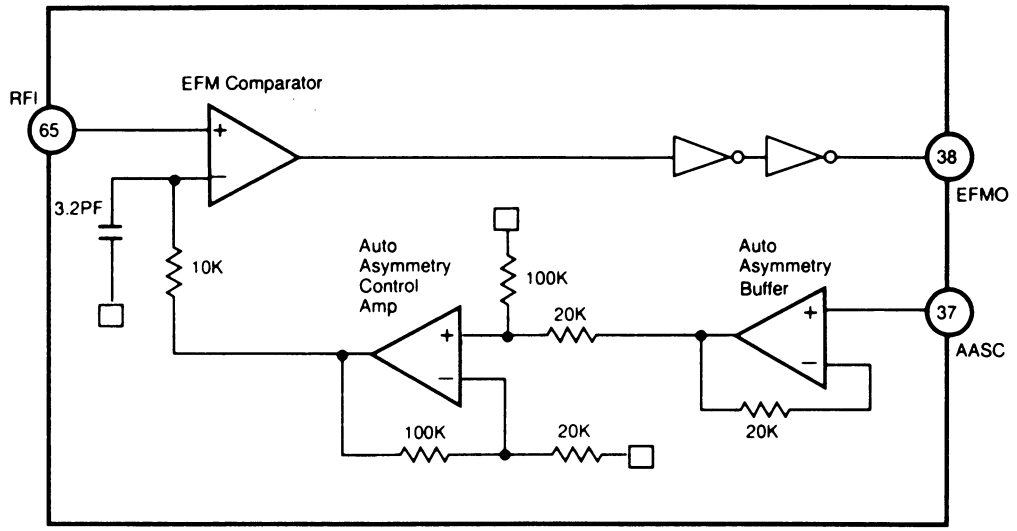
(7) DEFECT CIRCUIT

The bottom hold has had two time constant of long and short, after than the RFI signal inverted.
The short time constant of bottom hold is generated shorter than 0.1msec. of disc mirror defect and long time constant is generated by previous mirror level. Mirror defect detection signals are generated by differentiate on Capacitor Coupling and then transfer level.



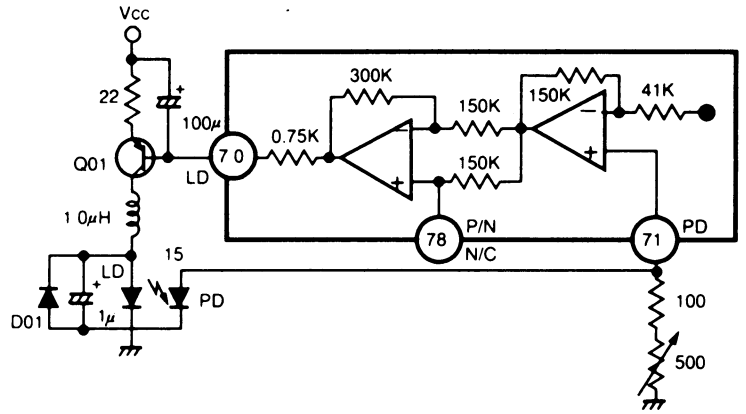
(8) EFM COMPARATOR

The EFM Comparator Converts a RF signal into a binary signal. A processing of disc production is occurred disproportion because of modification of disc.
That is not reduced by only AC coupling.
The reference voltage of EFM comparator is controlled utilizing the fact that the generation-probability 1, 0 is 50% (duty) in the binary EFM signal.

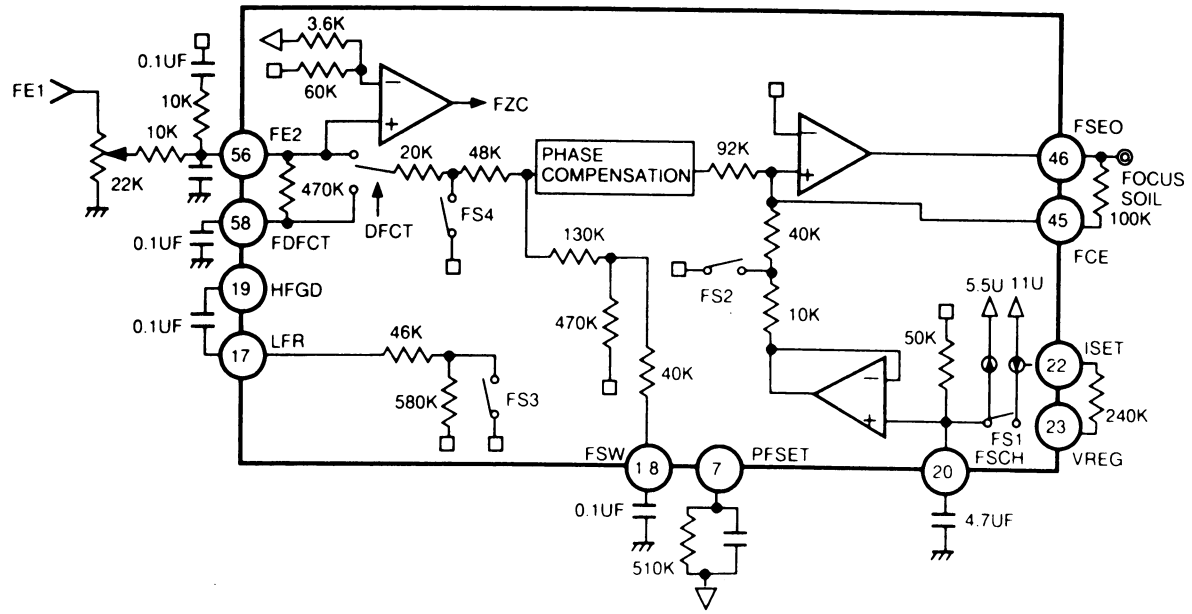


(9) APC (AUTOMATIC POWER CONTROL) CIRCUIT

- +5V Single Power Supply P-sub Laser

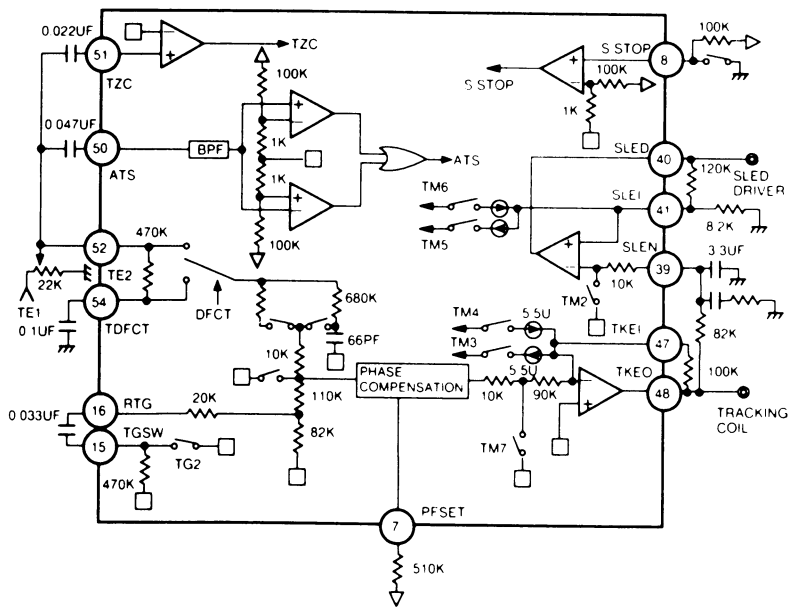


2. SERVO BLOCK



When the defect signal is detected, the focus servo Loop is isolated.
At this time, the focus servo error output is outputed through low pass filter formed by connecting a capacitor (0.1μF) between the built-in 470KΩ resistor and FDFCT Pin (Pin 58). Accordingly, the focus error output is held as just before error value during the defect.
The peak frequency of the focus phase compensation is at about 1.2kHz when the resistor connected to PFSET (Pin 7) is 510KΩ. It is inversely proportional to the resistor connected to the Pin 7.
While the focus search is operating, the FS4 switch is ON and then Focus error signal is isolated, accordingly it is outputed by FSEO Pin (Pin 46).
When the FS2 switch is ON, the focus servo Loop is on and then the focus error is outputed through the focus servo Loop.

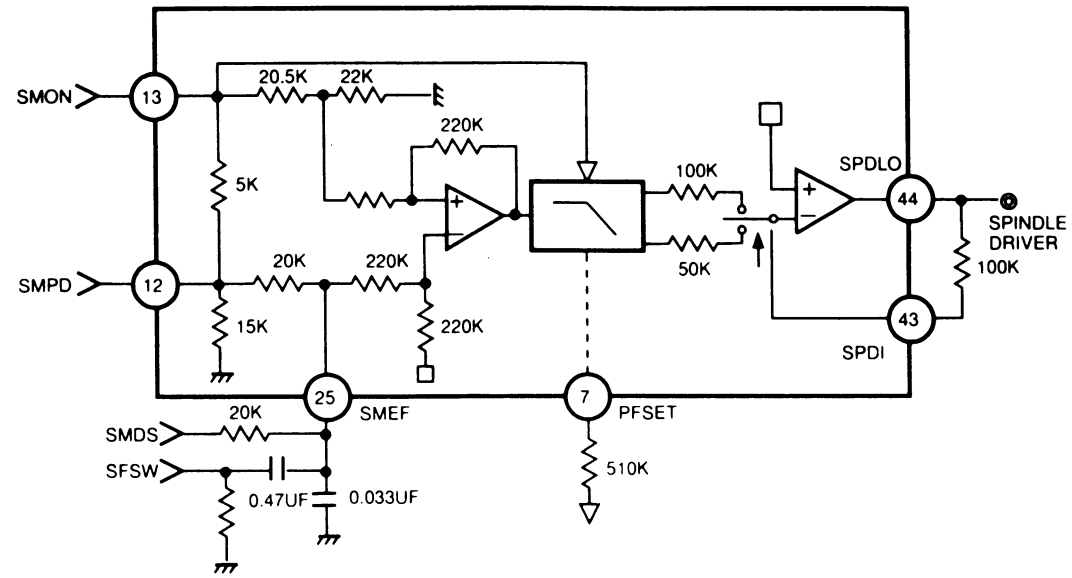
(2) TRACKING AND SLED SERVO LOOP



The capacitor across RTG (Pin 16) and TGSW (Pin 15) reduce high frequency gain when the TG2 switch is OFF. The Peak frequency of the tracking phase compensation is at about 1.2kHz when the resistor connected to PFSET (Pin 7) is 510KΩ. It is inversely proportional to the resistor connected to the Pin 7.
The tracking error signal is switched into low pass filter route formed by connecting a capacitor between the built-in resistor at DFCT (470KΩ) and Pin 54 (TDFCT) as for focus error signal.

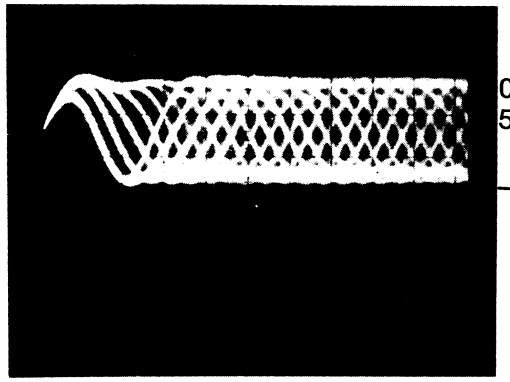
(3) SPINDLE SERVO AND LOW PASS FILTER

The 0.033μF and the 20KΩ connected to Pin 25 (SMEF) from the 200Hz LOW Pass filter.
And the carrier component of spindle servo error signals is eliminated.
In the CLV-S mode, SMEF becomes L and Pin 25 LPF fc lowers, strengthening the filter further.

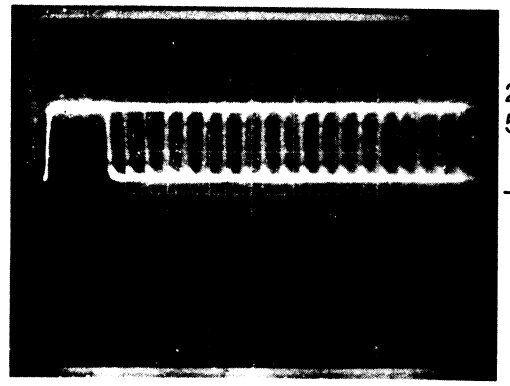


WAVEFORMS OF MAJOR CHECK POINT

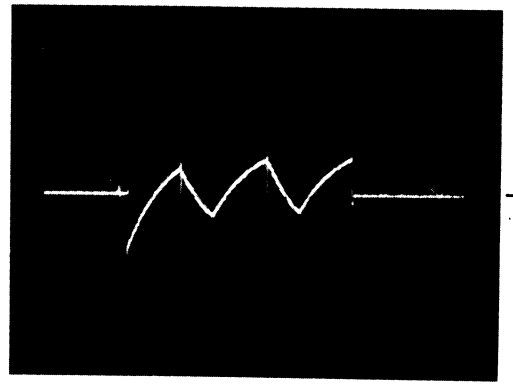
1. HF signal (RF signal) waveform (test point TP801) during normal play



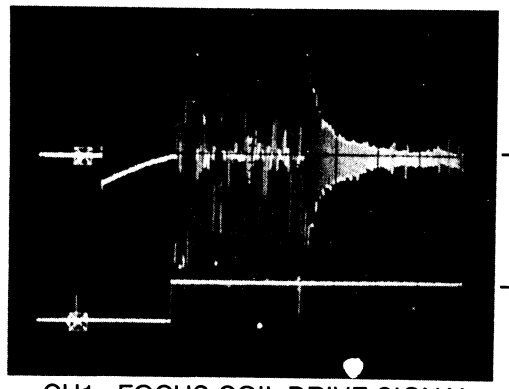
2. EFM signal (Pin No. 38 IC801) waveform during normal play



3. (1) Focus coil drive waveform (Pin 1, 2 of IC802)
   - When focus search failed or there is no disc on the tray



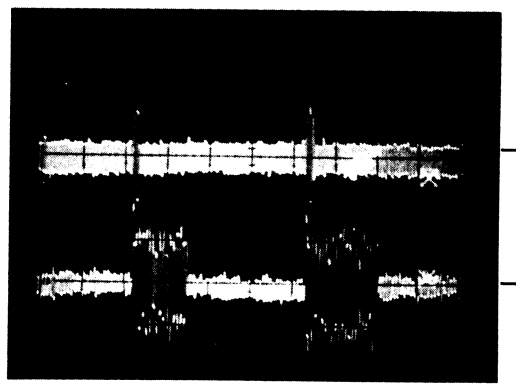
(2) Focus coil drive waveform (Pin 1, 2 of IC802) and FOK (Pin No. 59 of IC801) when focus search is accomplished.



CH1 : FOCUS COIL DRIVE SIGNAL
2V/Div.
CH2 : FOK

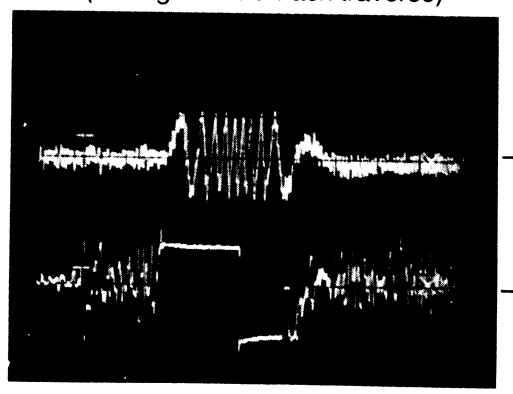
4. Tracking coil drive waveform 3 of IC802 and TEO during track traverse

(1) When time division is 20mS/div.



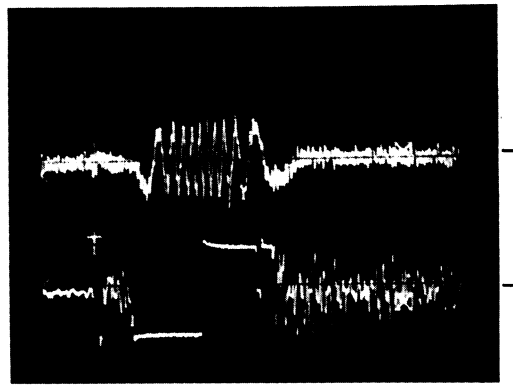
CH1 : TEO
1V/Div.
CH2 : TRACKING COIL DRIVE SIGNAL
2V/Div.

(2) When time division is 0.5mS/div. (During forward track traverse)



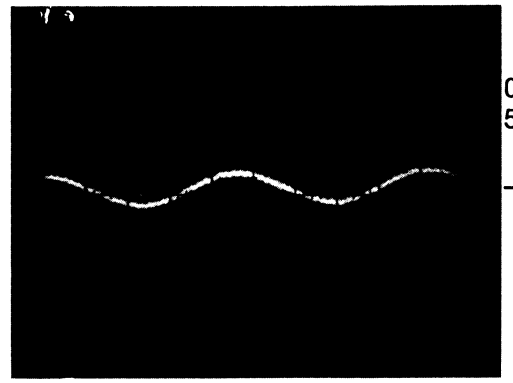
CH1 : TEO
1V/Div.
CH2 : TRACKING COIL DRIVE SIGNAL
2V/Div.

(3) When time division is 0.5mS/Div. (During backward track traverse)

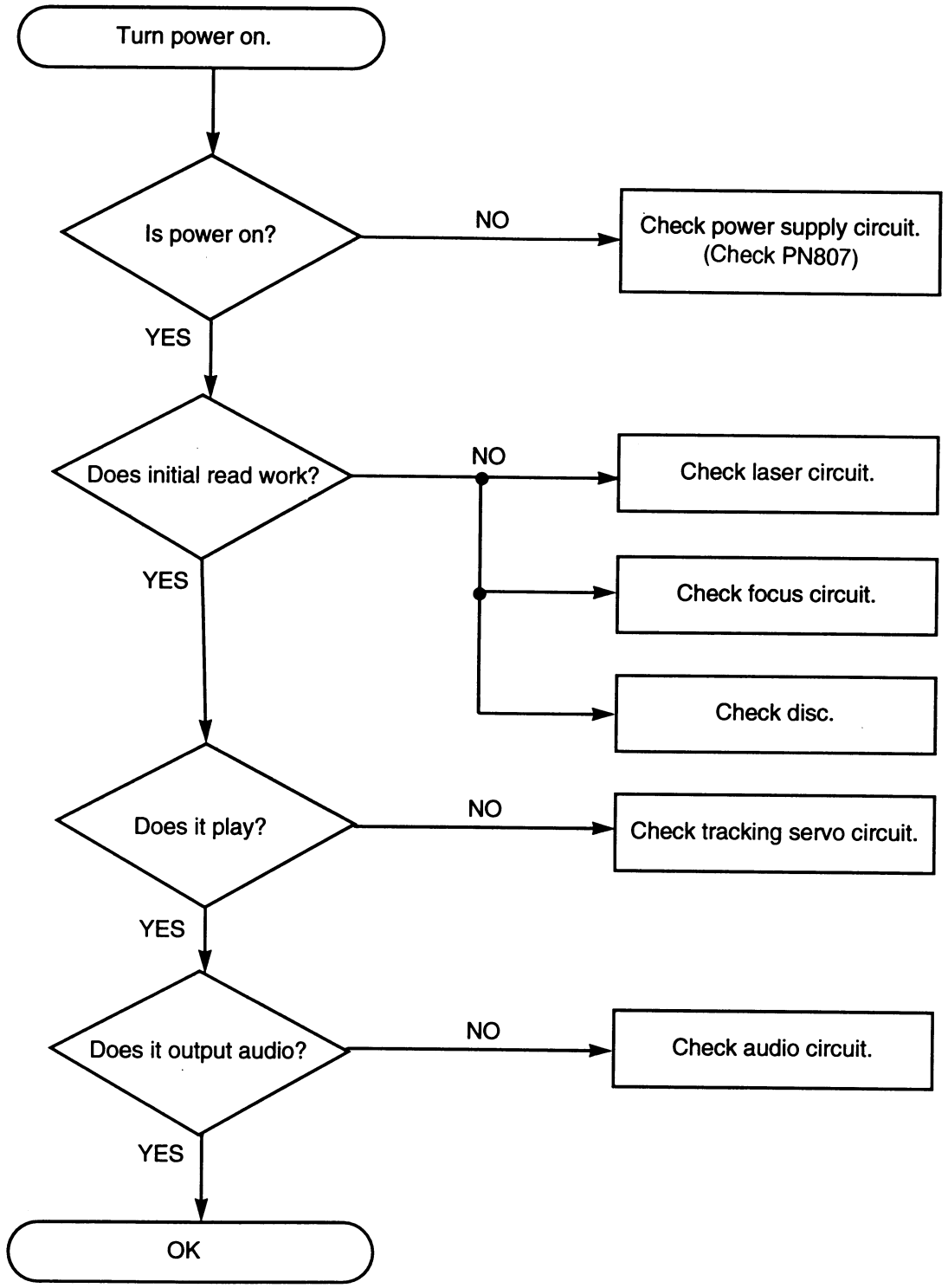


CH1 : TEO
1V/Div.
CH2 : TRACKING COIL DRIVE SIGNAL
2V/Div.

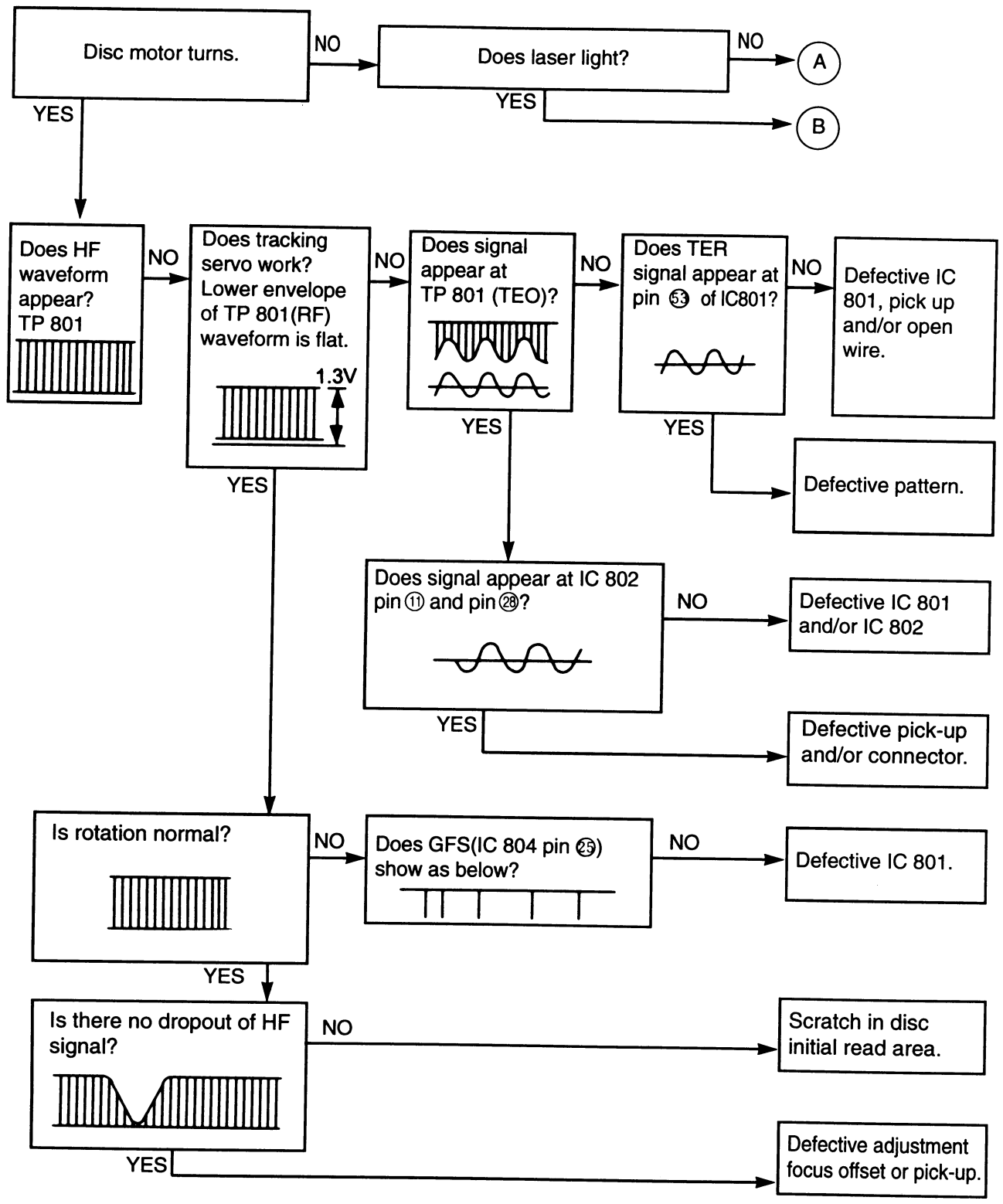
(4) Feed motor drive waveform (Pin 25 of IC802) During normal play



TROUBLESHOOTING



Fails to initial read



Ⓐ Laser does not light.

Is "L" applied to pin ⑩ of IC 801?

YES

NO

Did pickup return to innermost circular?

NO → Is data transferred from IC 801?

NO → Defective μ-COM.

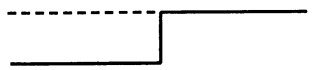
YES → Does voltage appear at IC 802 pin⑨?

NO → Defective IC 801, 802.

YES → Defective slide motor and/or connector.

YES

Does it stop at inner pick circular after shift?



YES → Is defect output from LM SW applied to pin ⑥ of PN 803?

NO → Defective LMT SW and/or connector.

YES → Defective μ-COM

YES

Is power supplied to laser Q 801? (Q 801 collector : about 1.8V)

NO → Defective connector.

YES

Does laser current flow? 1.0V across R832.

R832≫1.0V → YES → Defective Q 801 and/or laser.

R832≪1.0V → YES → Defective laser and/or connector.

Ⓑ Laser lights.

Does lens move up/down?

NO → Does IC 802 output focus search signal?

IC 802 pin ④ (FEO)

NO → Defective IC 802.

YES → Is focus search signal applied to pin ①,② of IC 802?

NO → Defective IC 802.

YES → Open activator and/or connector.

YES

Confirm initial read with disc

Does TP 801 HF signal appear even in low level?

NO → Open connector and/or defective IC 801.

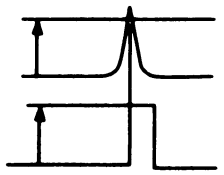
YES

Is laser output adjustment correct?

NO → Incorrect turntable height. Degraded laser diode.

YES

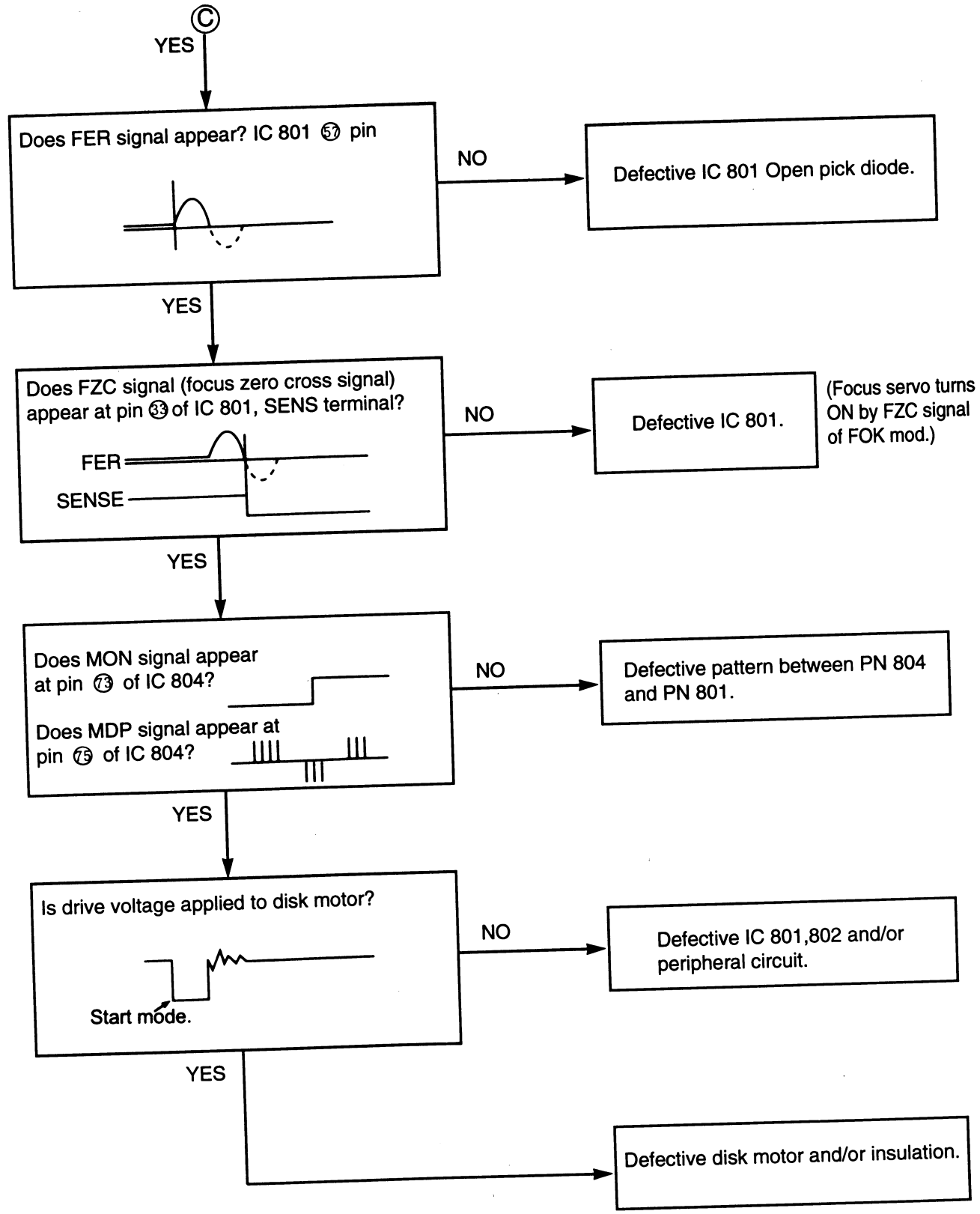
Does FOK (focus ok) signal appear? (TP 801 HF, REF 0.4V)



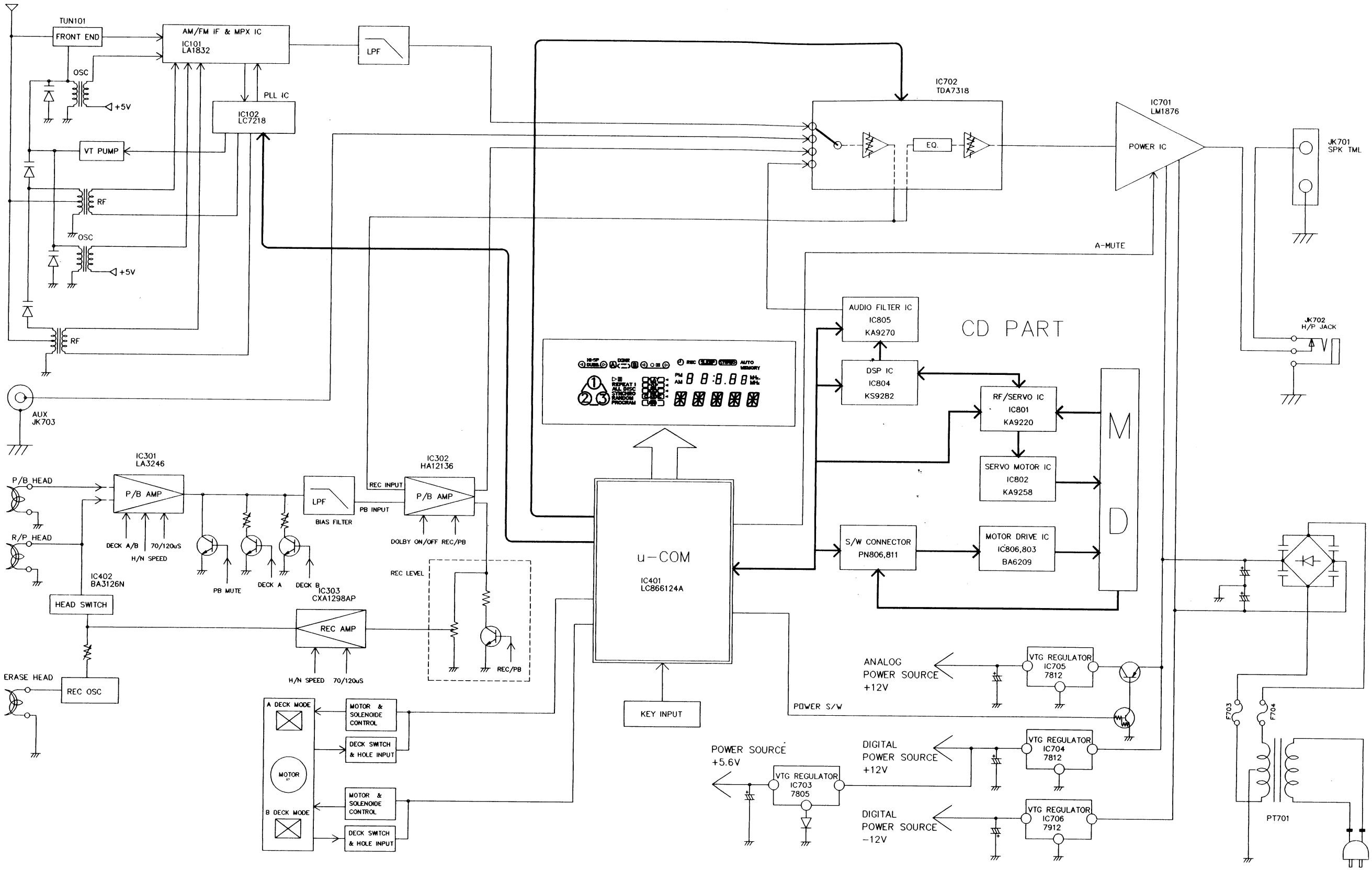
NO → Defective IC 801.

YES

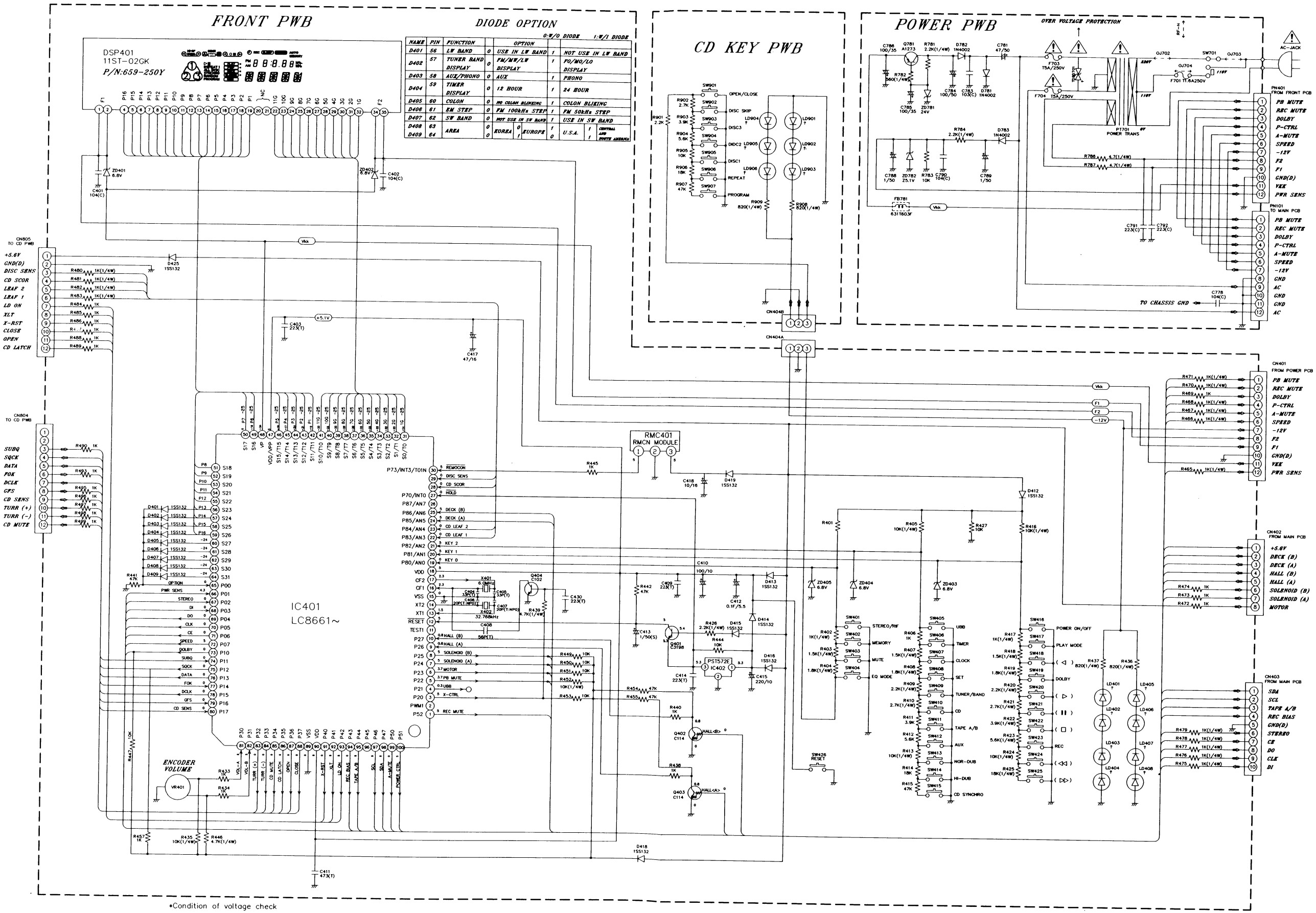
Ⓒ


Ⓒ
YES
Does FER signal appear? IC 801 ㊼ pin
NO
Defective IC 801 Open pick diode.
YES
Does FZC signal (focus zero cross signal) appear at pin ㉝ of IC 801, SENS terminal?
FER
SENSE
NO
Defective IC 801.
(Focus servo turns ON by FZC signal of FOK mod.)
YES
Does MON signal appear at pin ⑬ of IC 804?
Does MDP signal appear at pin ⑮ of IC 804?
NO
Defective pattern between PN 804 and PN 801.
YES
Is drive voltage applied to disk motor?
Start mode.
NO
Defective IC 801,802 and/or peripheral circuit.
YES
Defective disk motor and/or insulation.

BLOCK DIAGRAM

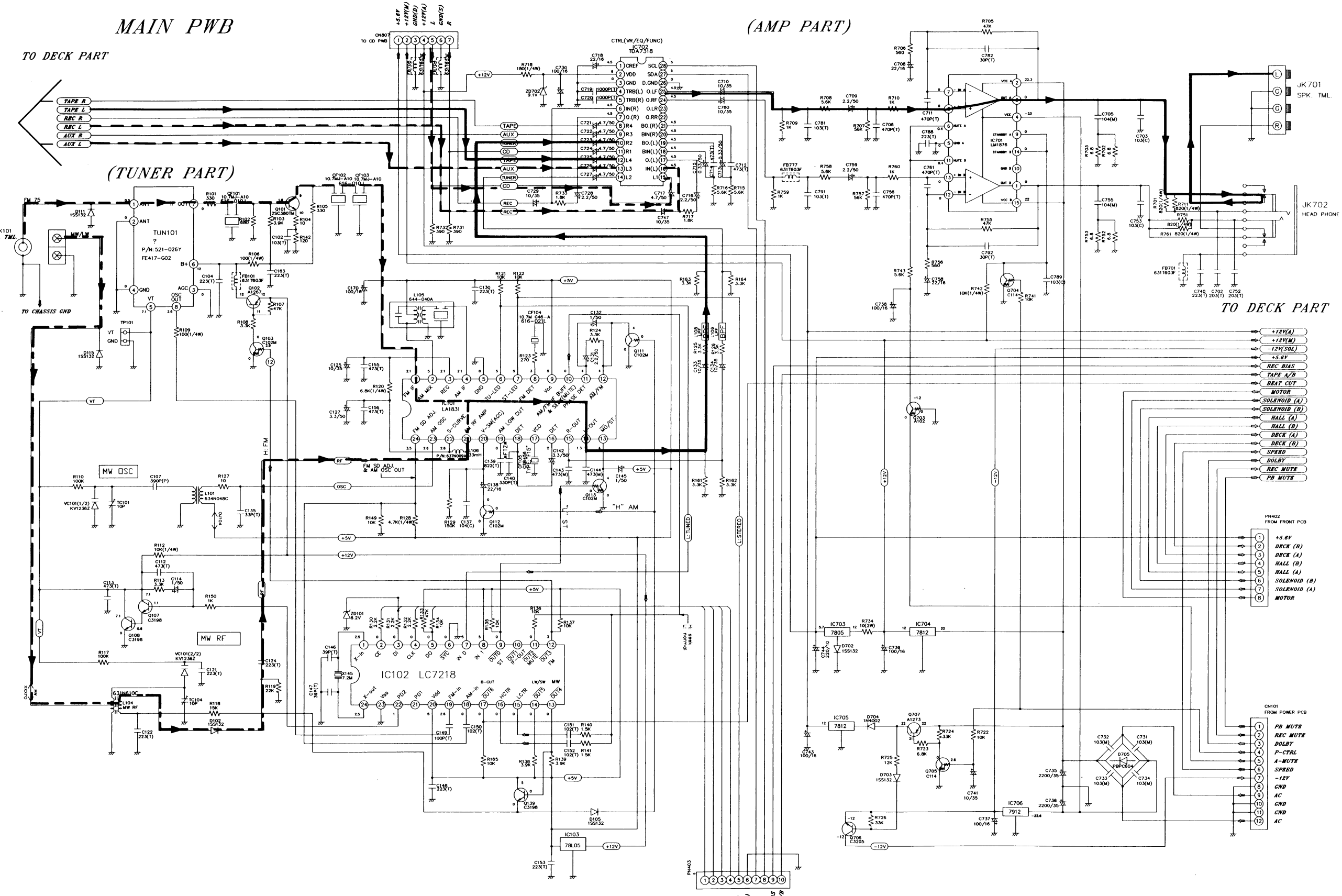


SCHEMATIC DIAGRAMS ● FRONT CIRCUIT



NOTES : 1. Resistance values are indicated in ohms unless otherwise specified (K=1,000, M=1,000,000).
2. Capacitance values are shown in microfarads unless otherwise (P=MICRO-MICRO FARADS).
3. Schematic diagram for this model are subject to change for improvement without prior notice.

● AMP & TUNER CIRCUIT (for MODEL FFH-393A)

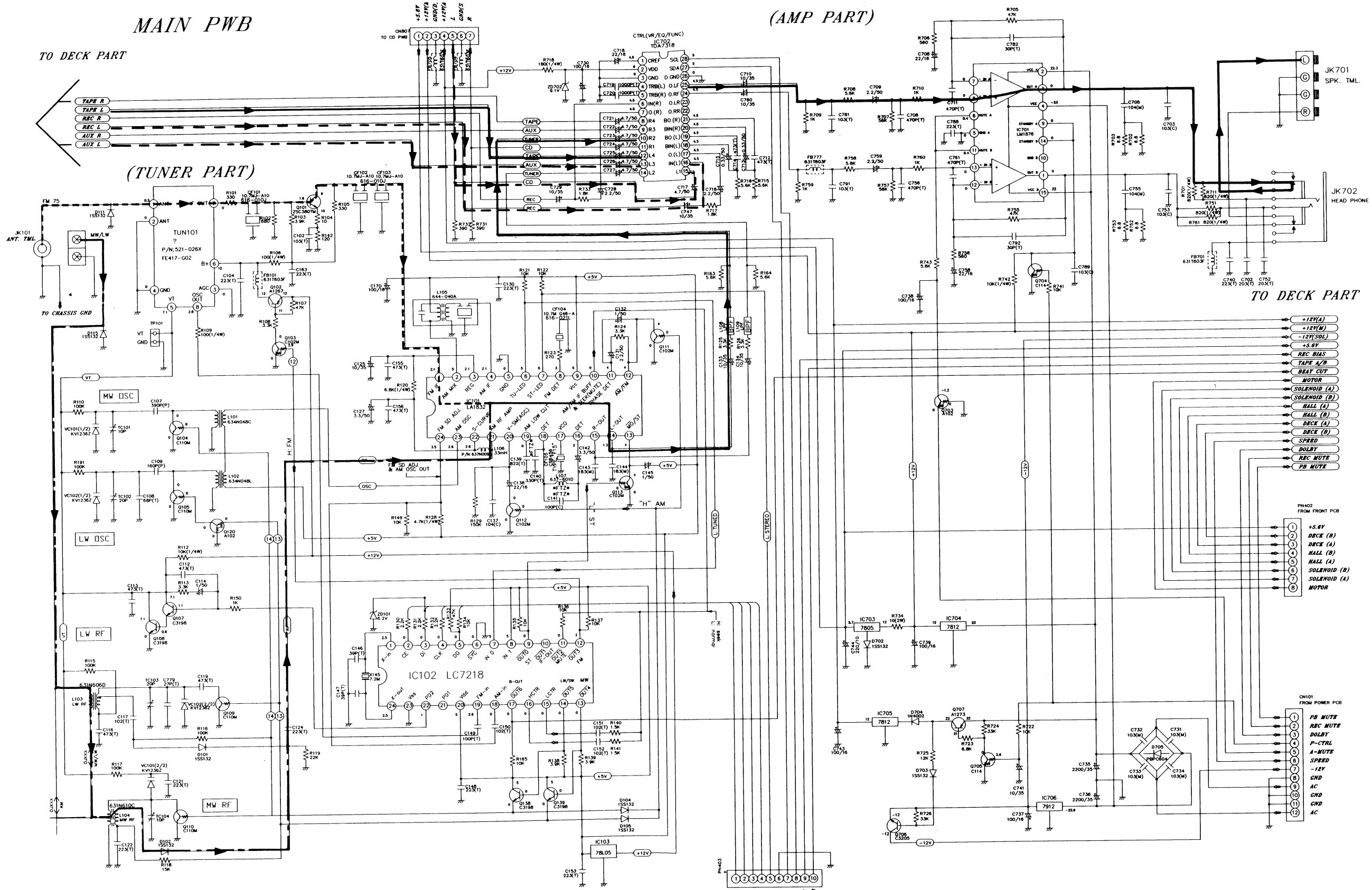


* Condition of voltage check
1. Tuner FM funtion
2. STEREO ON
3. EQ flat
4. UBB off

- - - FM SIGNAL
- - - AM SIGNAL
——— TUNER SIGNAL
——— TAPE PLAY SIGNAL
- - - - TAPE RECORD SIGNAL
- - - AUX SIGNAL
——— COMMON
- - - - CD SIGNAL

NOTES :
1. Resistance values are indicated in ohms unless otherwise specified (K=1,000, M=1,000,000).
2. Capacitance values are shown in microfarads unless otherwise (P=MICRO-MICRO FARADS).
3. Schematic diagram for this model are subject to change for improvement without prior notice.

● AMP & TUNER CIRCUIT (for MODEL FFH-393L)

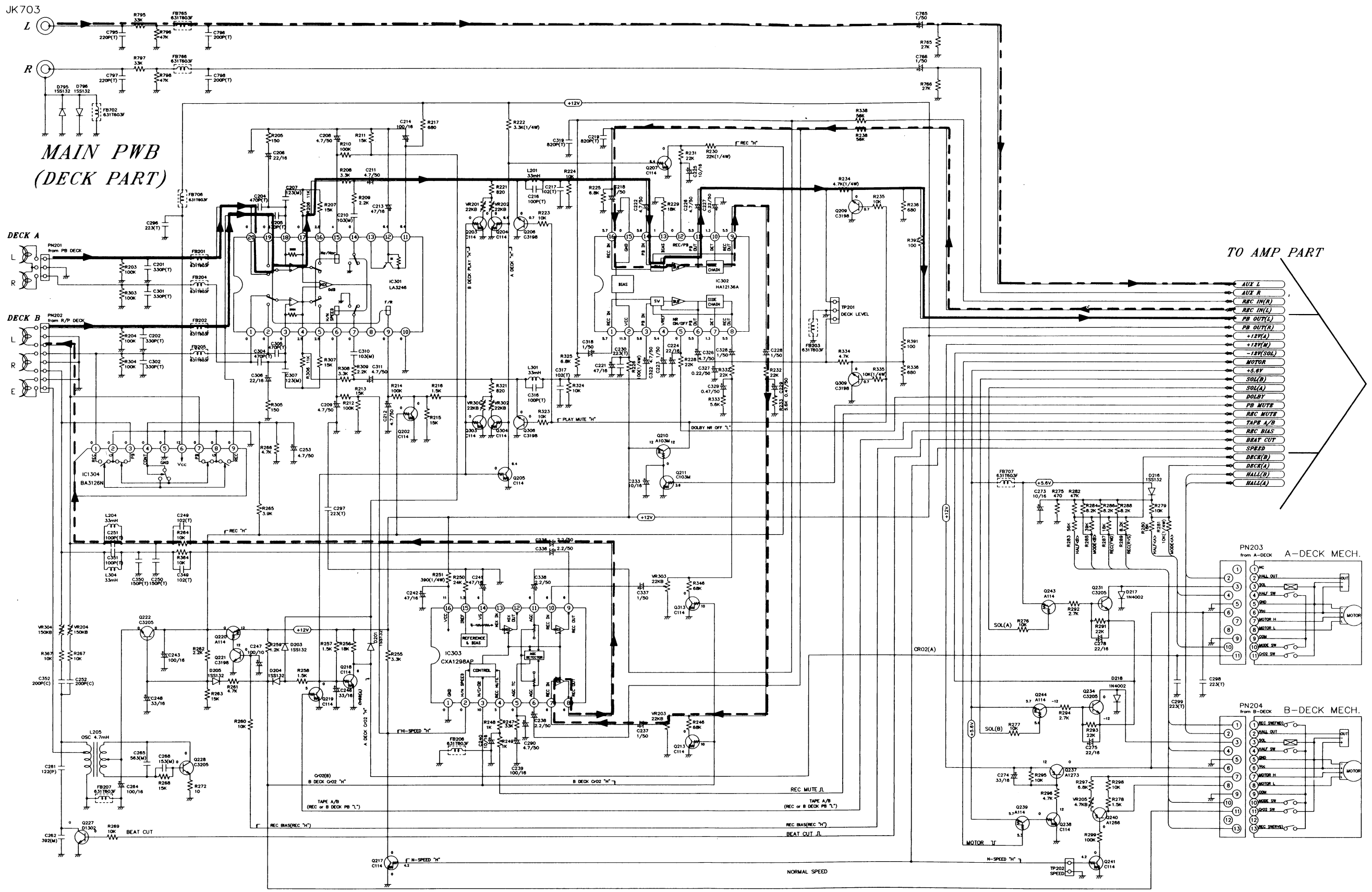


* Condition of voltage check
1. Tuner FM funtion
2. STEREO ON
3. EQ flat
4. UBB off

FM SIGNAL
AM SIGNAL
TUNER SIGNAL
TAPE PLAY SIGNAL
TAPE RECORD SIGNAL
AUX SIGNAL
COMMON
CD SIGNAL

NOTES :
1. Resistance values are indicated in ohms unless otherwise specified (K=1,000, M=1,000,000).
2. Capacitance values are shown in microfarads unless otherwise (P=MICRO-MICRO FARADS).
3. Schematic diagram for this model are subject to change for improvement without prior notice.

● DECK CIRCUIT

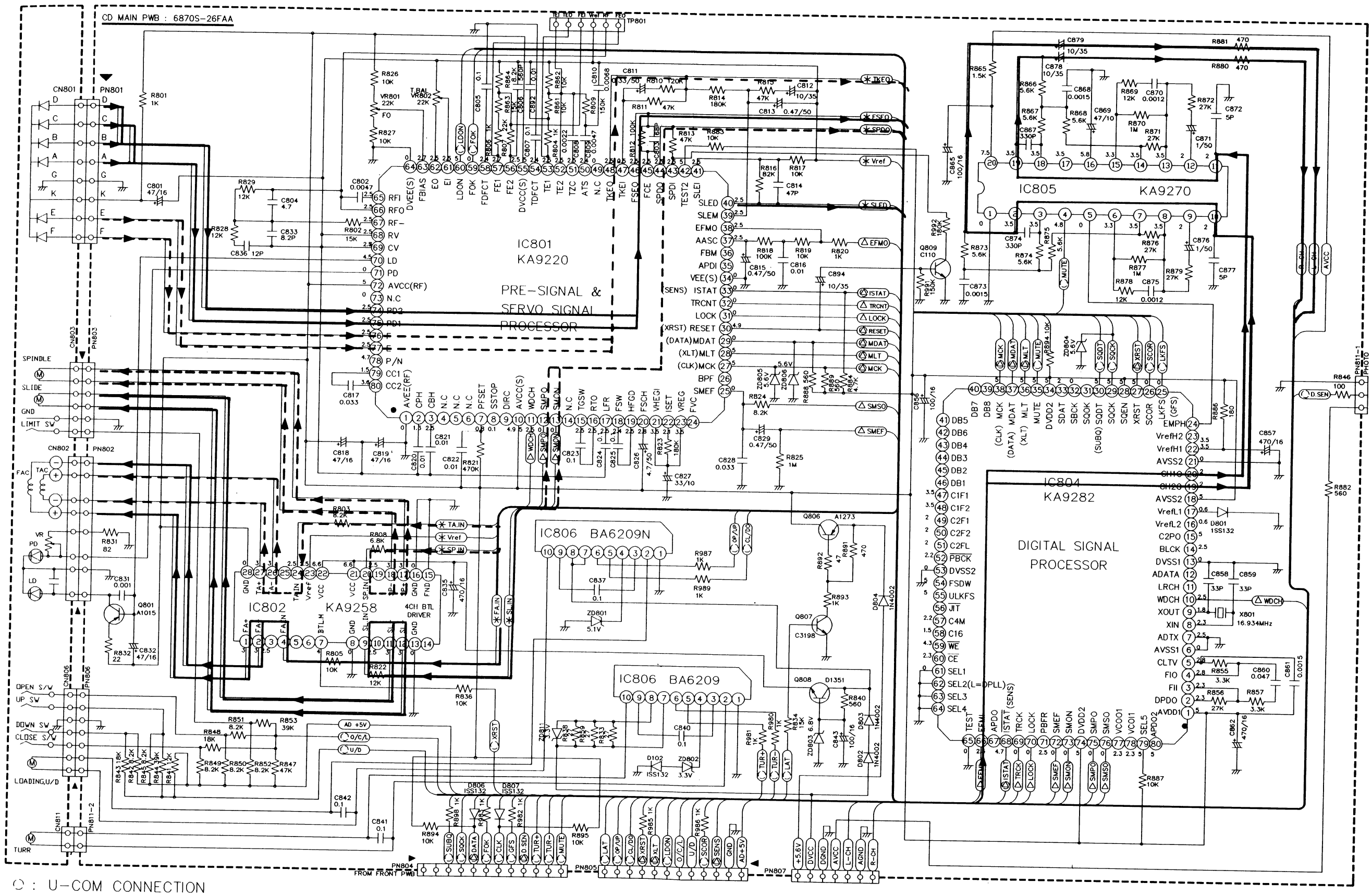


*Condition of voltage check
1.DECK funtion
2.Dolby off
3.EQ flat

TAPE PLAY SIGNAL
TAPE RECORD SIGNAL
AUX SIGNAL

NOTES : 1. Resistance values are indicated in ohms unless otherwise specified (K=1,000, M=1,000,000).
2. Capacitance values are shown in microfarads unless otherwise (P=MICRO-MICRO FARADS).
3. Schematic diagram for this model are subject to change for improvement without prior notice.

● CD CIRCUIT

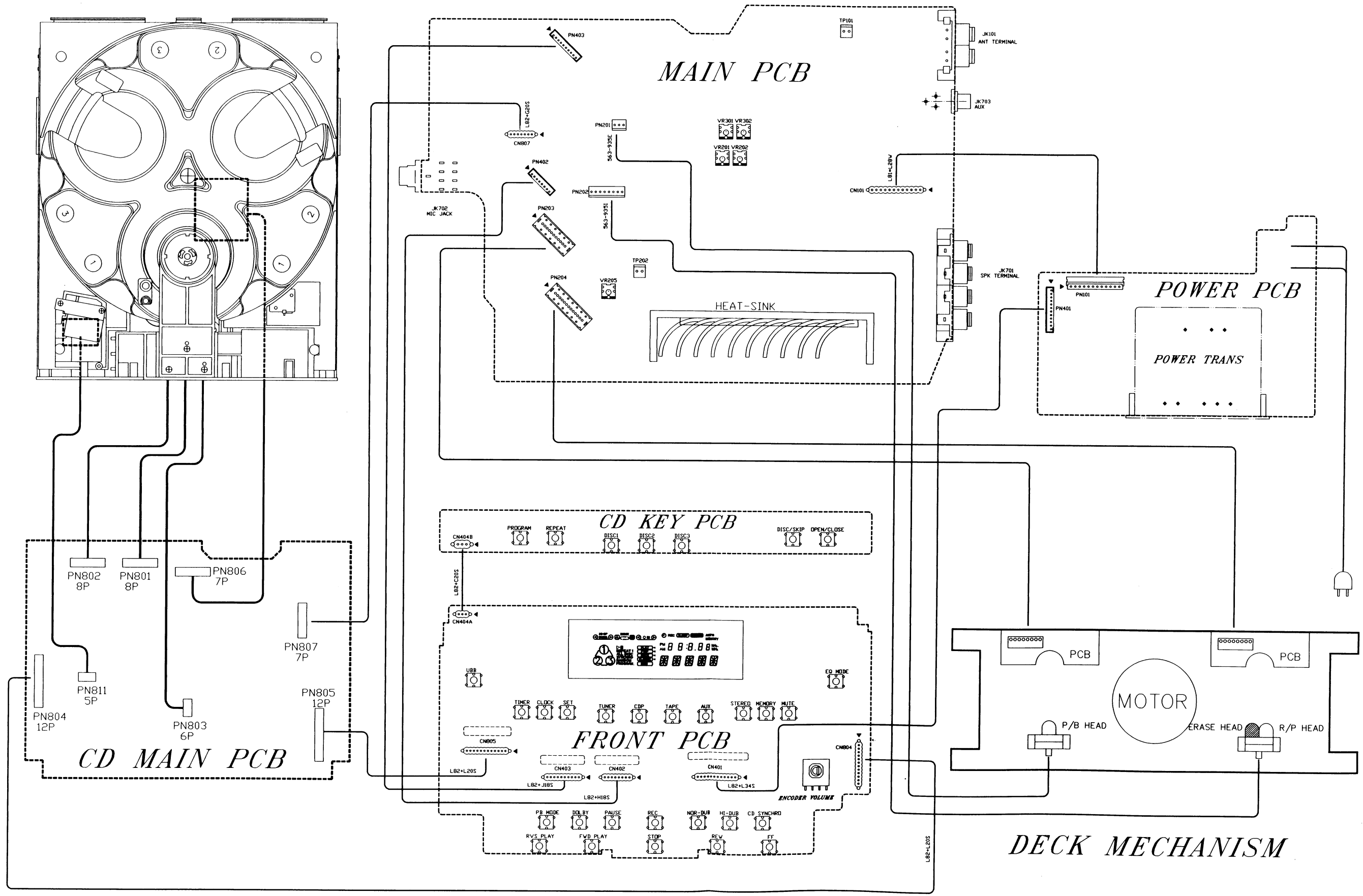


○ : U-COM CONNECTION
△ : RF-DSP CONNECTION
⏢ : U-COM-DSP-RF CON.
＊ : DRIVE CONNECTION

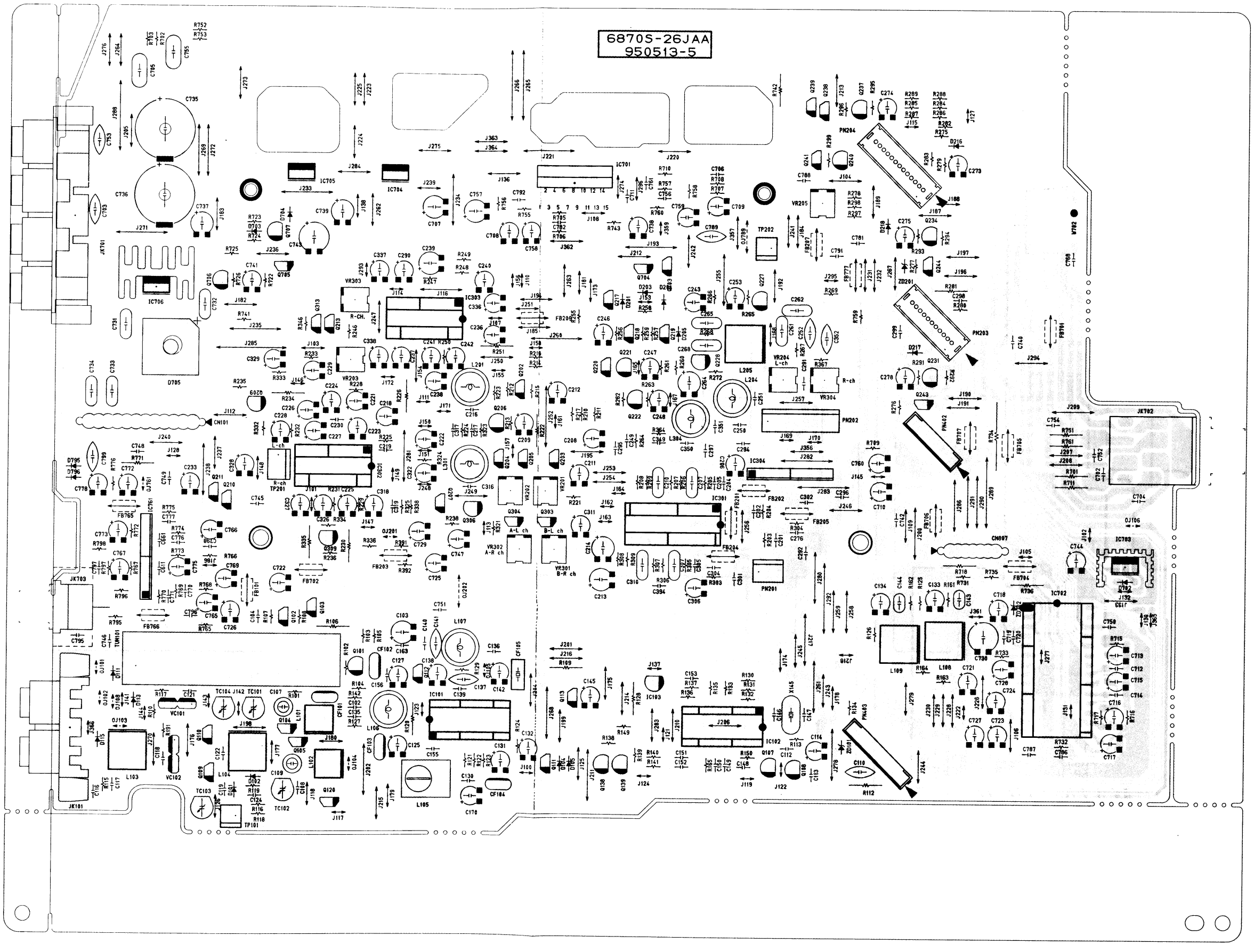
— — — TRACKING SIGNAL — — — SPINDLE MOTOR SIGNAL ——— CD AUDIO SIGNAL
——— FOCUS SIGNAL ——— SLIDE MOTOR SIGNAL

NOTES : 1. Resistance values are indicated in ohms unless otherwise specified (K=1,000, M=1,000,000).
2. Capacitance values are shown in microfarads unless otherwise (P=MICRO-MICRO FARADS).
3. Schematic diagram for this model are subject to change for improvement without prior notice.

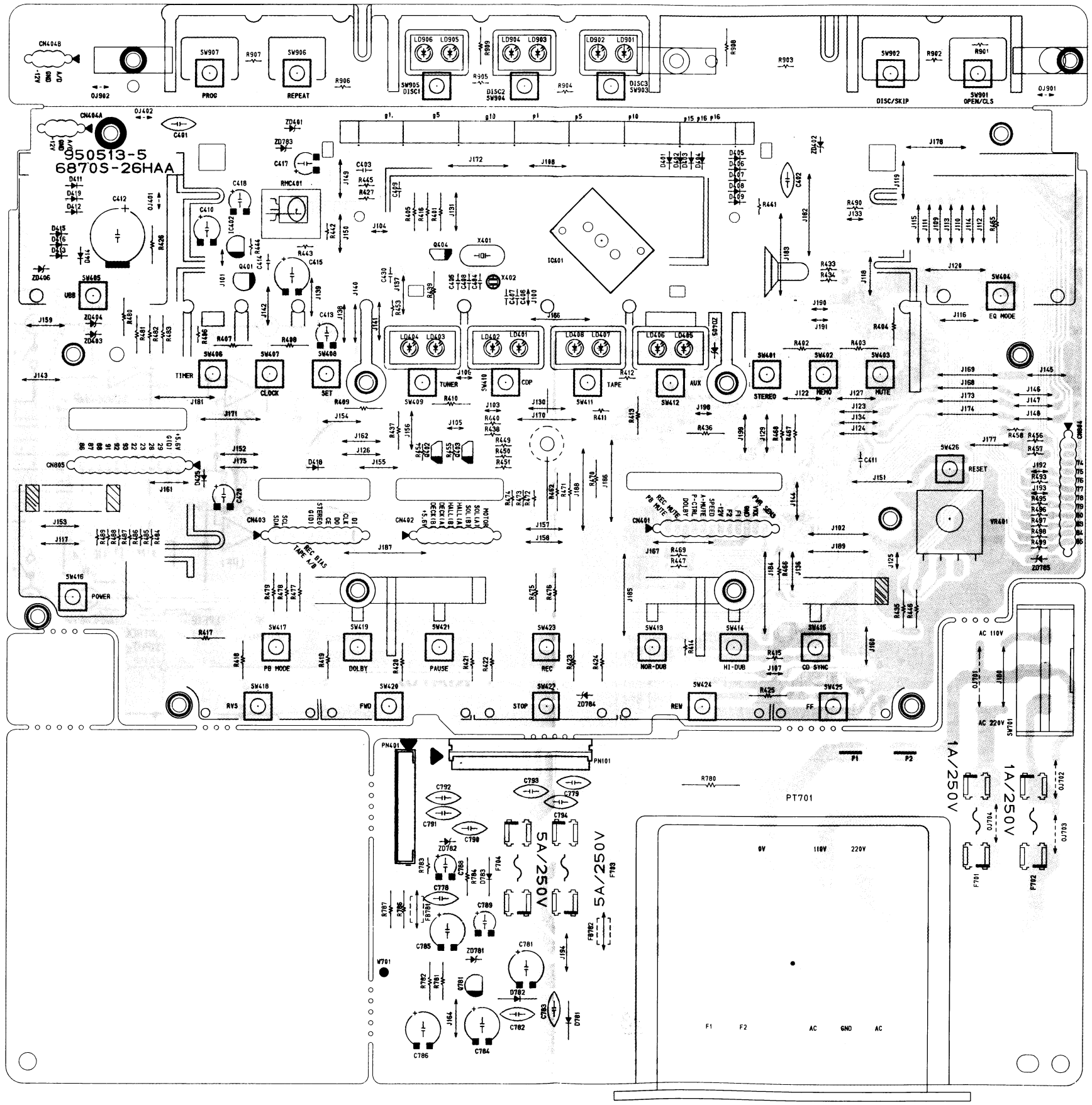
WIRING DIAGRAM



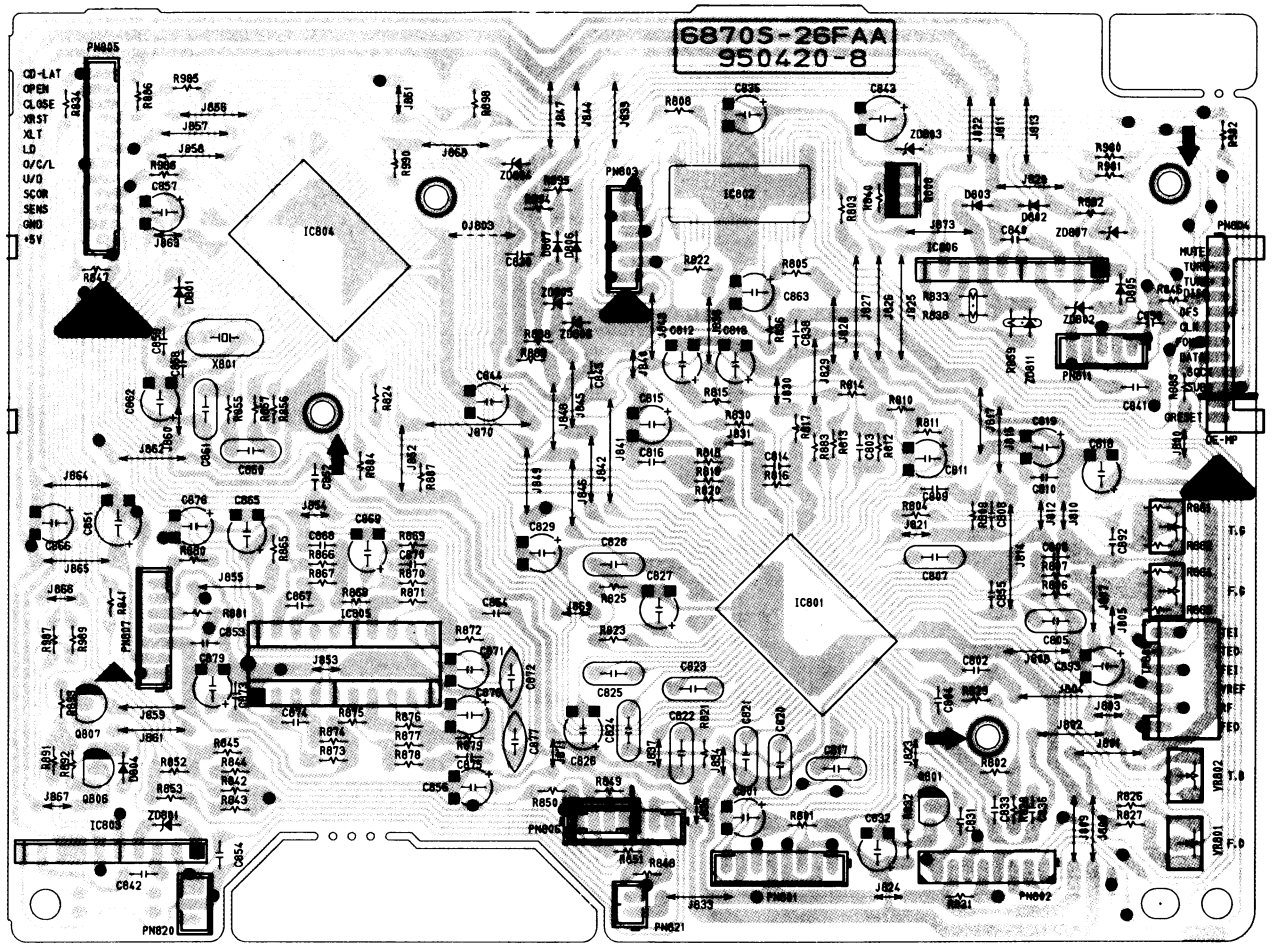
PCB LAYOUTS ● AMP, TUNER, DECK & AUX P.C.BOARD (TOP VIEW)



● FRONT, CD KEY & POWER P.C.BOARD (TOP VIEW)

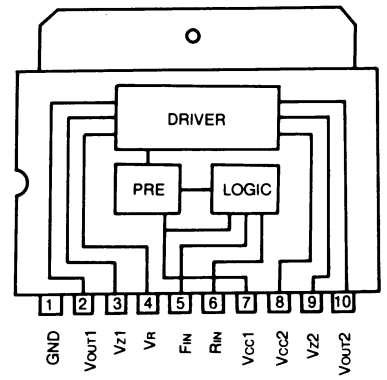


● CD MAIN P.C.BOARD (TOP VIEW)

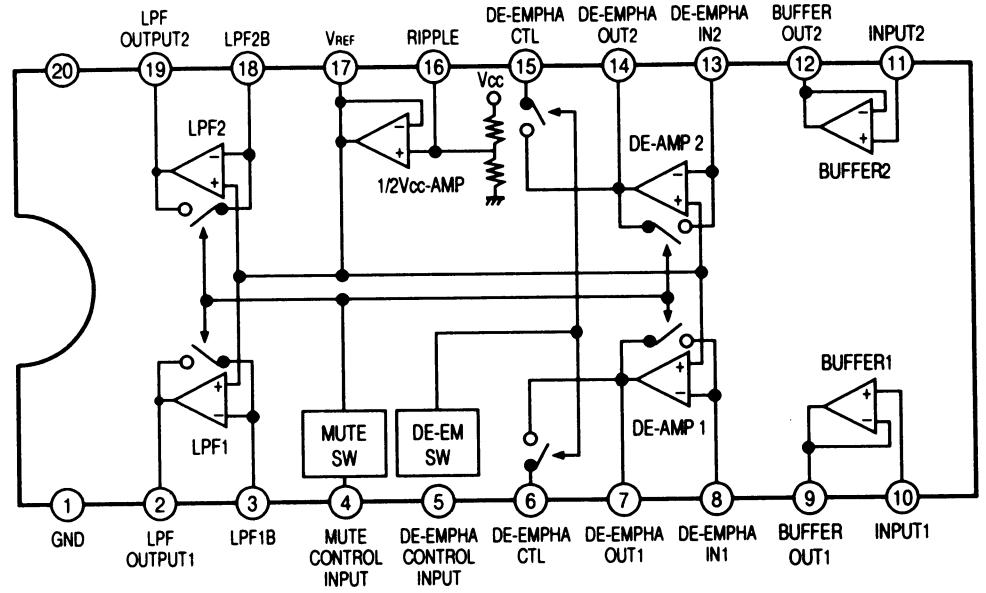


INTERNAL BLOCK DIAGRAM OF ICs

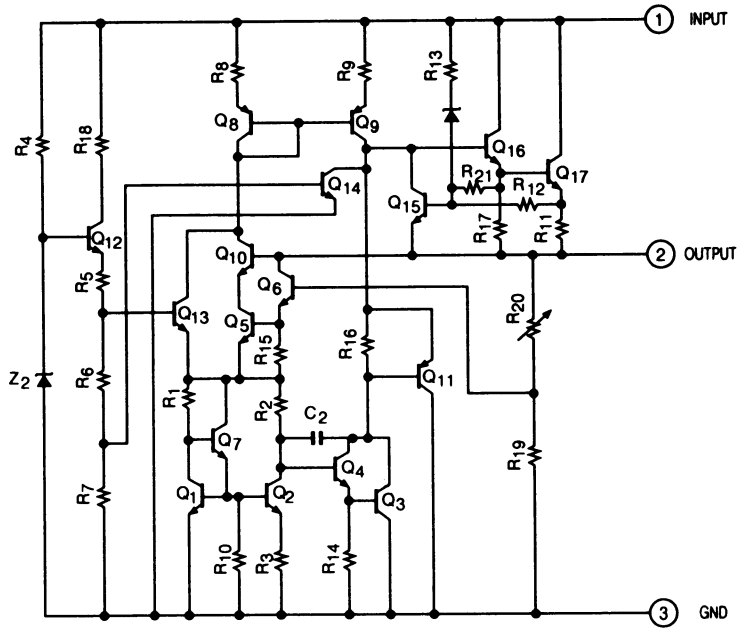
■ BA6209



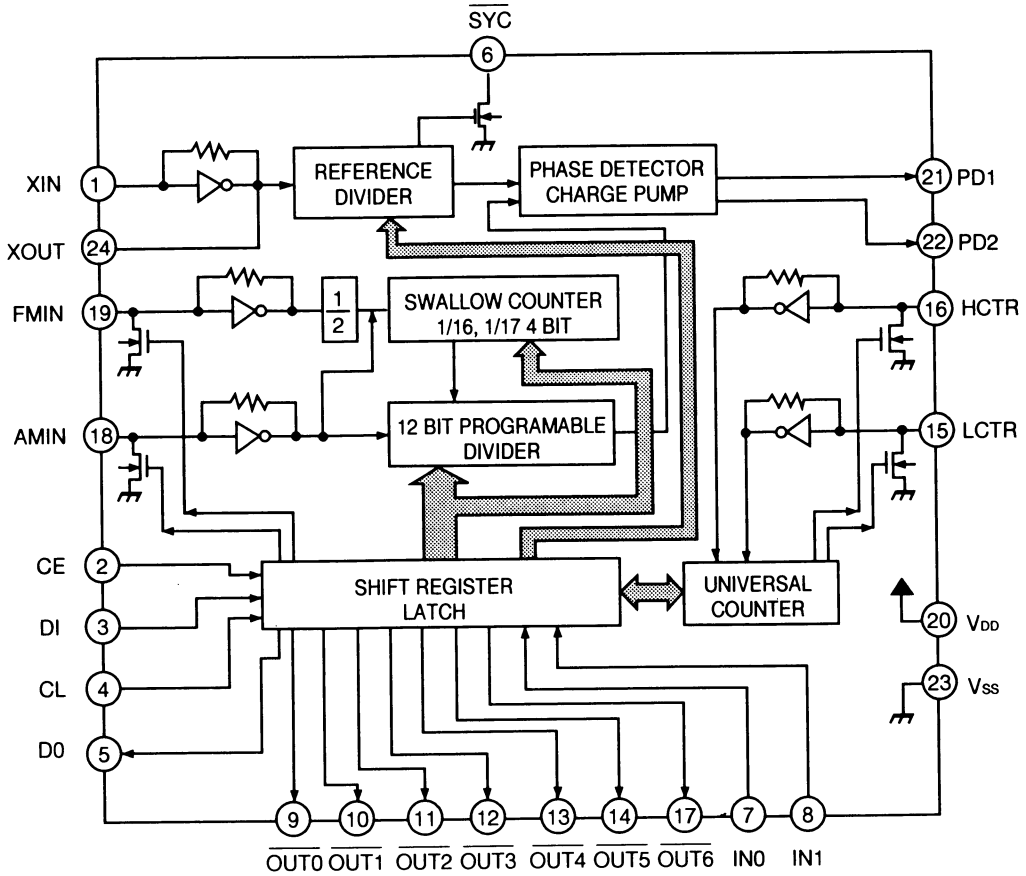
■ KA9270



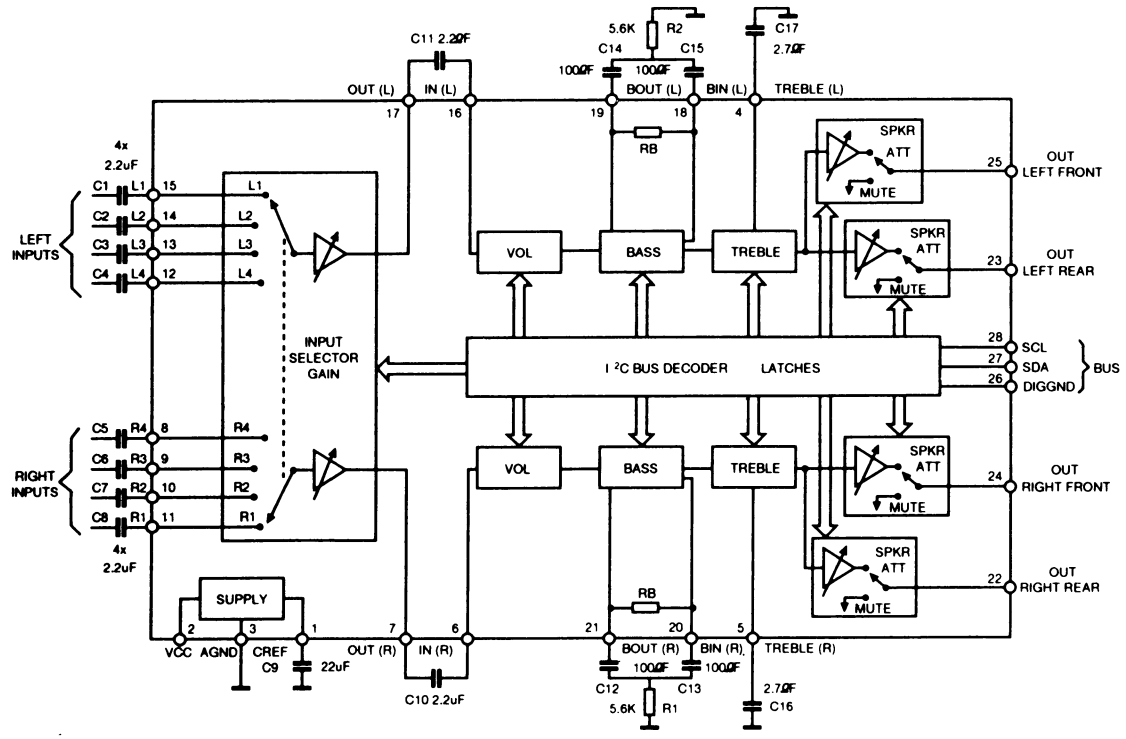
■ KIA78XXPI



■ LC7218

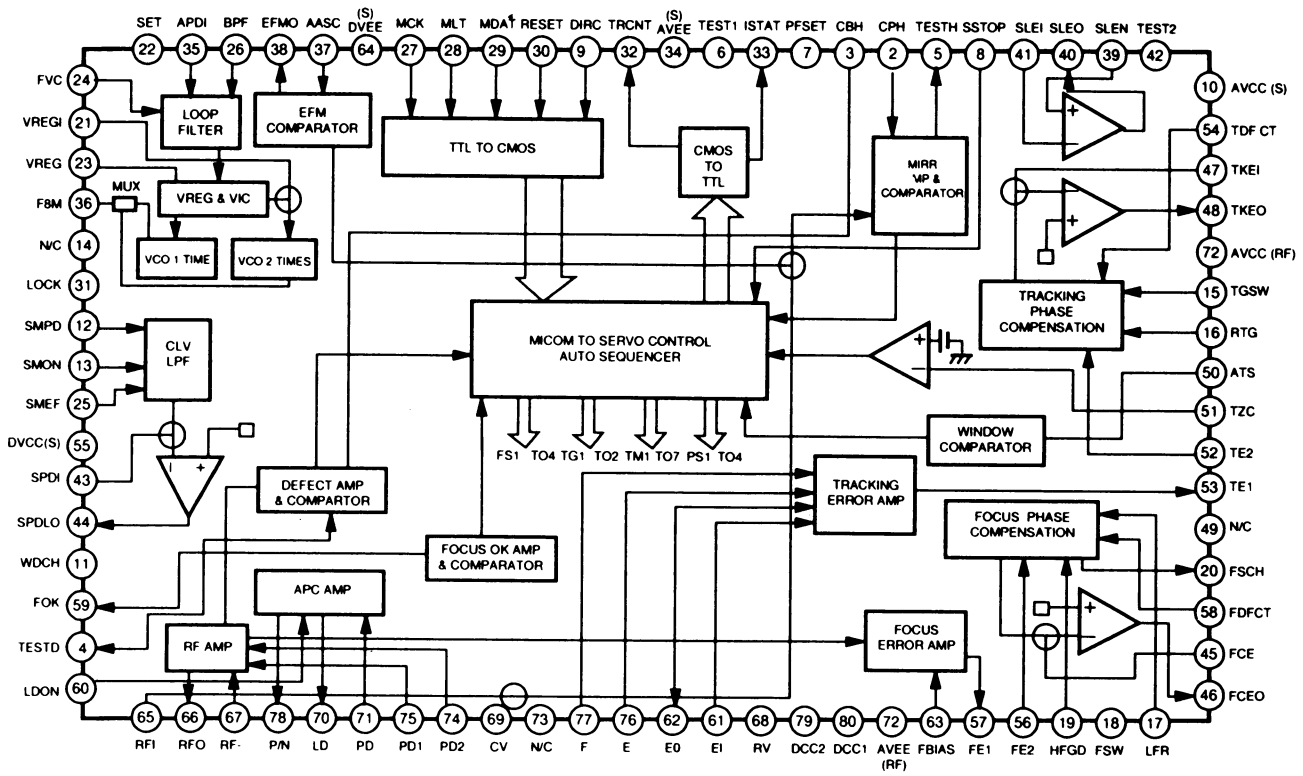


■ TDA7318



■ KA9220

BLOCK DIAGRAM


SET APDI BPF EFMO AASC (S)DVEE MCK MLT MDAT RESET DIRC TRCNT (S)AVEE TEST1 ISTAT PFSET CBH CPH TESTH SSTOP SLEI SLEO SLEN TEST2
22 35 26 38 37 64 27 28 29 30 9 32 34 6 33 7 3 2 5 8 41 40 39 42
FVC 24
VREGI 21
VREG 23
F8M 36
N/C 14
LOCK 31
SMPD 12
SMON 13
SMEF 25
DVCC(S) 55
SPDI 43
SPDLO 44
WDCH 11
FOK 59
TESTD 4
LDON 60
LOOP FILTER
EFM COMPARATOR
TTL TO CMOS
CMOS TO TTL
MIRR HP & COMPARATOR
MUX
VREG & VIC
VCO 1 TIME
VCO 2 TIMES
CLV LPF
MICOM TO SERVO CONTROL AUTO SEQUENCER
TRACKING PHASE COMPENSATION
WINDOW COMPARATOR
FS1 TO4 TG1 TO2 TM1 TO7 PS1 TO4
DEFECT AMP & COMPARTOR
TRACKING ERROR AMP
FOCUS PHASE COMPENSATION
FOCUS OK AMP & COMPARATOR
APC AMP
RF AMP
FOCUS ERROR AMP
10 AVCC (S)
54 TDF CT
47 TKEI
48 TKEO
72 AVCC (RF)
15 TGSW
16 RTG
50 ATS
51 TZC
52 TE2
53 TE1
49 N/C
20 FSCH
58 FDFCT
45 FCE
46 FCEO
65 66 67 78 70 71 75 74 69 73 77 76 62 61 68 79 80 72 63 57 56 19 18 17
RFI RFO RF- P/N LD PD PD1 PD2 CV N/C F E E0 EI RV DCC2 DCC1 AVEE (RF) FBIAS FE1 FE2 HFGD FSW LFR

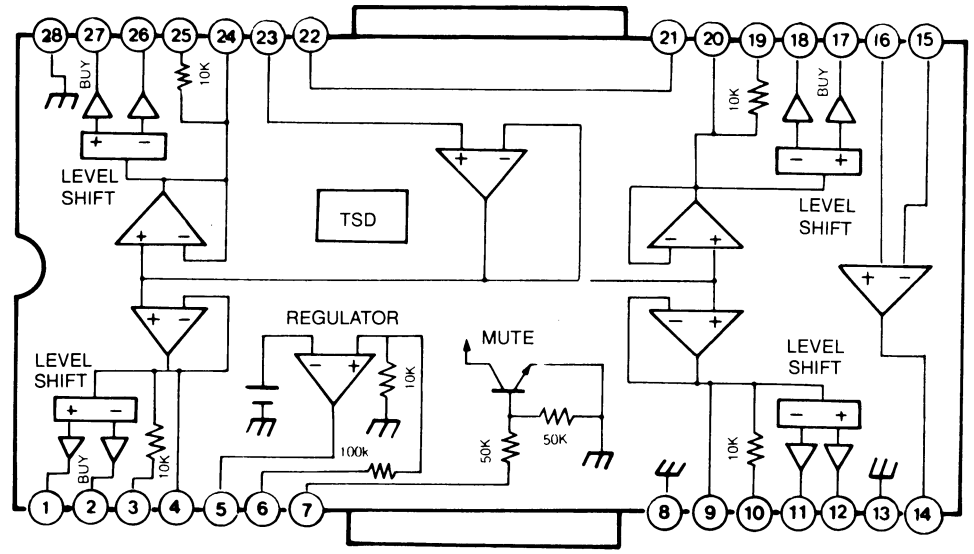
PIN DESCRIPTION

Pin No.	Symbol	Description
1	AVEE (R)	Analog negative power supply input Pin for RF part
2	CPH	Capacitor connection Pin of mirror hold
3	CBH	Capacitor connection Pin of defect bottom-hold
4	TESTD	Defect test Pin
5	TESTM	Mirror test Pin
6	TEST1	Input Pin for test
7	PFSET	Peak frequency setting pin for focus, tracking compensation and fc (cut off frequency) of CLV LPF
8	SSTOP	Check the position pin of pick-up whether inside or not
9	DIRC	Direct 1 Track Jump Control Pin
10	AVCC (S)	Analog positive power supply input Pin for SERVO part
11	WDCH	Auto-sequencer clock-input Pin (Normal speed=88.2kHz, Double speed=176.4kHz)
12	SMPD	Connection Pin of DSP SMPD
13	SMON	Connection Pin of DSP SMON, spindle servo ON at "H"
14	N/C	No connection Pin

Pin No.	Symbol	Description
15	TGSW	Providing time constant to change the high frequency tracking gain
16	RTG	Capacitor connection Pin to switch the tracking gain of high frequency
17	LFR	Capacitor connection Pin to perform rising low bandwidth of focus servo loop
18	FSW	High frequency gain of focus servo loop can be changed by FS3 switch ON or OFF
19	HFGD	Reducing high frequency gain with capacitor connected between Pin 18 and Pin 19
20	FSCH	Time constant external Pin to generate focus search waveform
21	VREGI	External regulator voltage input Pin for VCO
22	ISET	Determing the peak value of focus search, track jump and SLED kick
23	VREG	3.5V Regulator output Pin
24	FVC	Pin connected external resistor to adjust free running frequency of VCO
25	SMEF	Providing an external LPF time constant of CLV SERVO Loop
26	BPF	Providing time constant for Loop filter of VCO
27	MCK	Clock input Pin from micom
28	MLT	Latch input Pin from micom
29	MDAT	Data input Pin from micom
30	RESET	Reset input Pin from micom, reset at "L"
31	LOCK	Pin for operation of the sled runaway prevention function at "L"
32	TRCNT	Track count output Pin
33	ISTAT	Internal status output Pin
34	AVEE (S)	Analog negative power supply input Pin for SERVO part
35	APDI	Input Pin of DSP phase comparison output (PHAS)
36	F8M	Output Pin of analog VCO Normal speed=8.64MHz, Double speed=17.28MHz
37	AASC	Auto-Asymmetry control input Pin
38	EFMO	EFM comparator output Pin
39	SLEN	Non-inverting input Pin of SLED SERVO amplifier
40	SLEO	Output Pin of SLED SERVO amplifier
41	SLEI	Inverting input Pin of SLED SERVO amplifier
42	TEST2	Test input Pin to change speed mode Normal speed="H", Double speed="L"
43	SPDI	Inverting input Pin of spindle servo amplifier
44	SPDLO	Spindle servo amplifier output Pin
45	FCE	Inverting input Pin of focus servo complifier
46	FSEO	Output Pin of focus servo amplifier
47	TKEI	Non-inverting input Pin of tracking servo amplifier
48	TKEO	Output Pin of tracking servo amplifier
49	N/C	No connection

Pin No.	Symbol	Description
50	ATS	Anti-shock input Pin
51	TZC	Tracking Zero Crossing input Pin
52	TE2	Tracking Error Servo input Pin
53	TE1	Output Pin of tracking Error amplifier
54	TDFCT	Capacitor Connection Pin for Defect Compensation of tracking servo
55	DVCC (S)	Digital positive power supply input Pin for servo part
56	FE2	Focus error servo input Pin
57	FE1	Output Pin of focus error amplifier
58	FDFCT	Capacitor connection Pin for defect compensation of focus servo
59	FOK	Output Pin of focus OK comparator
60	LDON	Laser diode ON/OFF control Pin
61	EI	Feedback input Pin of E I-V amplifier
62	EO	Output Pin of E I-V amplifier
63	FBIAS	Bias Pin of non-inverting input of focus error amplifier
64	DVEE (S)	Digital negative power supply input Pin for servo part
65	RFI	Output Signal of RF summing amplifier is inputed through capacitor
66	RFO	Output Pin of RF summing amplifier
67	RF-	Inverting input Pin of RF summing amplifier
68	RV	Output Pin of (AVCC+AVEE)/2 Voltage
69	CV	Bias input Pin of center voltage buffer
70	LD	Output Pin of APC amplifier
71	PD	Input Pin of APC amplifier
72	AVCC (R)	Analog positive power supply input Pin for RF part
73	N/C	No connection
74	PD2	Inverting input Pin of RF I-V AMP2
75	PD1	Inverting input Pin of RF I-V AMP1
76	F	Inverting input Pin of F I-V AMP
77	E	Inverting input Pin of E I-V AMP
78	P/N	Selecting P-sub/N-sub of laser diode
79	DCC2	Defect bottom-hold output is inputed through capacitor
80	DCC1	Output Pin of defect bottom-hold

■ KA9258D

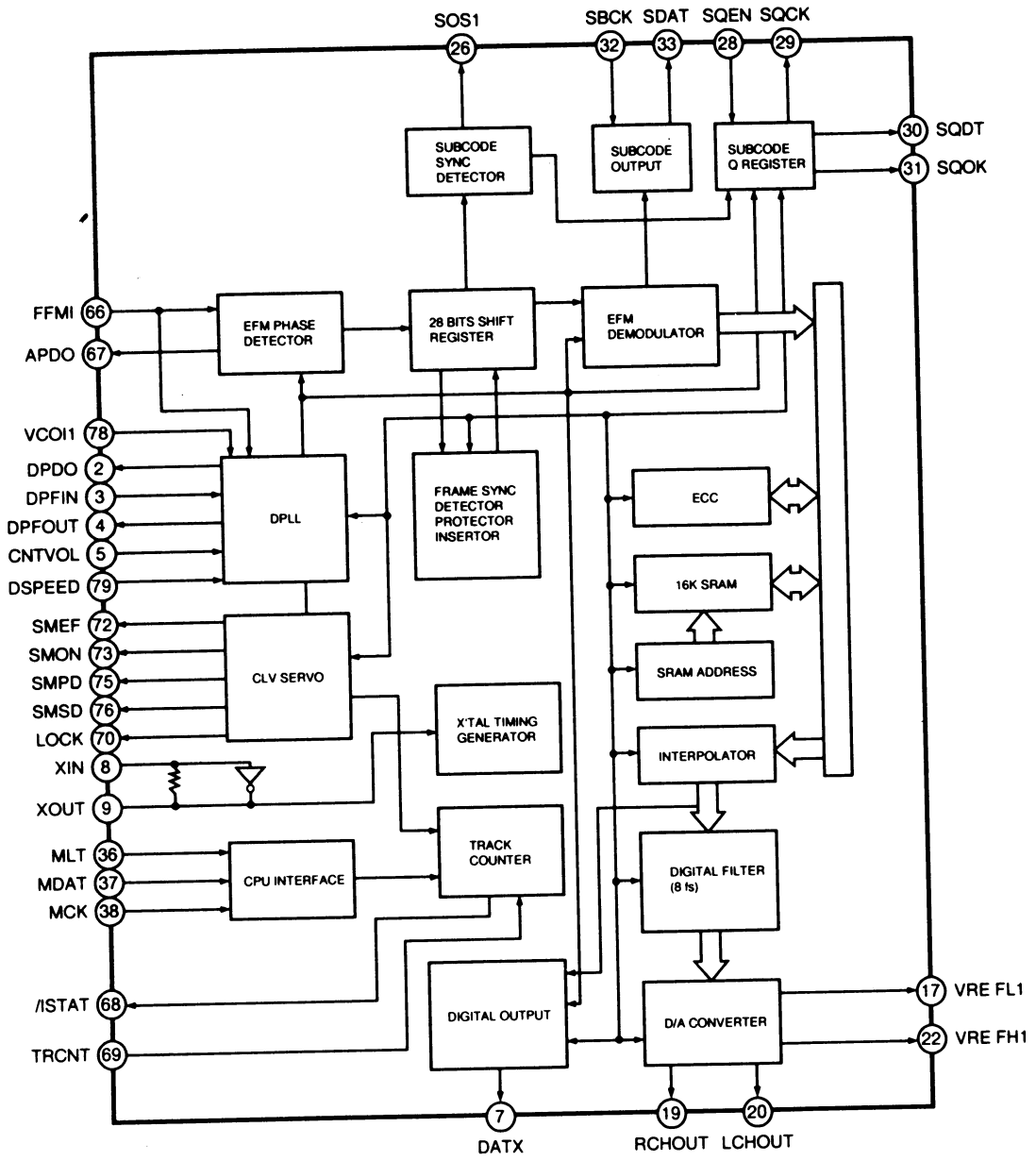


PIN DESCRIPTION

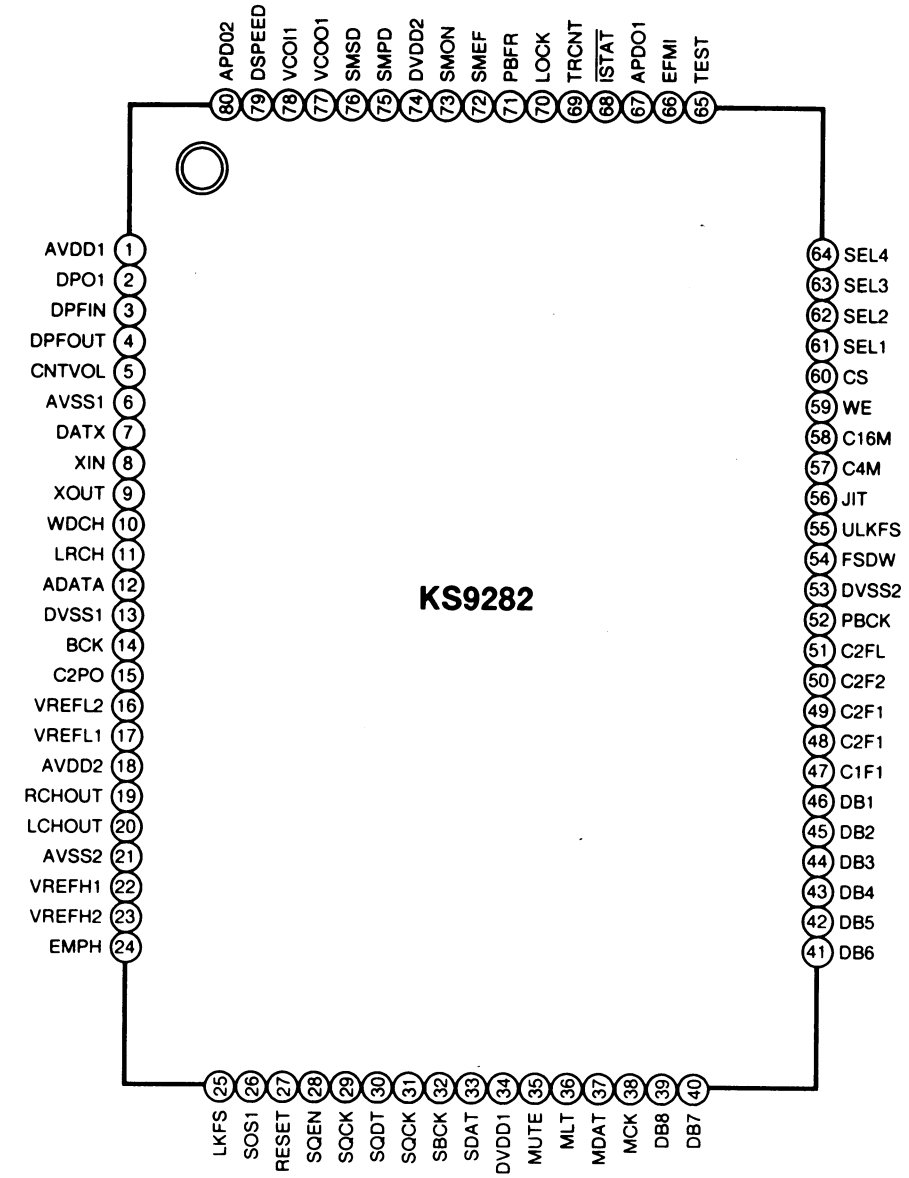
Pin No.	Symbol	I/O	Description
1	DO1.1	O	DRIVE OUTPUT
2	DO1.2	O	DRIVE OUTPUT
3	DI1.1	I	DRIVE INPUT
4	DI1.2	I	DRIVE INPUT
5	REG		REGULATOR
6	REO	O	REGULATOR OUTPUT
7	MUTE		MUTE
8	GND1		GROUND
9	DI2.1	I	DRIVE INPUT
10	DI2.2	I	DRIVE INPUT
11	DO2.1	O	DRIVE OUTPUT
12	DO2.2	O	DRIVE OUTPUT
13	GND2		GROUND
14	OPOUT	O	OPAMP OUTPUT
15	OPIN (–)	I	OPAMP OUTPUT (–)
16	OPIN (+)	I	OPAMP INPUT (+)
17	DO3.1	O	DRIVE OUTPUT
18	DO3.2	O	DRIVE OUTPUT
19	DI3.1	I	DRIVE INPUT
20	DI3.2	I	DRIVE INPUT
21	VCC1		SUPPLY VOLTAGE
22	VCC2		SUPPLY VOLTAGE
23	VREF		2.5V BIAS VOLTAGE
24	DI4.1	I	DRIVE INPUT
25	DI4.2	I	DRIVE INPUT
26	DO4.1	O	DRIVE OUTPUT
27	DO4.2	O	DRIVE OUTPUT
28	GND3		GROUND

■ KS9282

BLOCK DIAGRAM



PIN CONFIGURATION



PIN DESCRIPTION

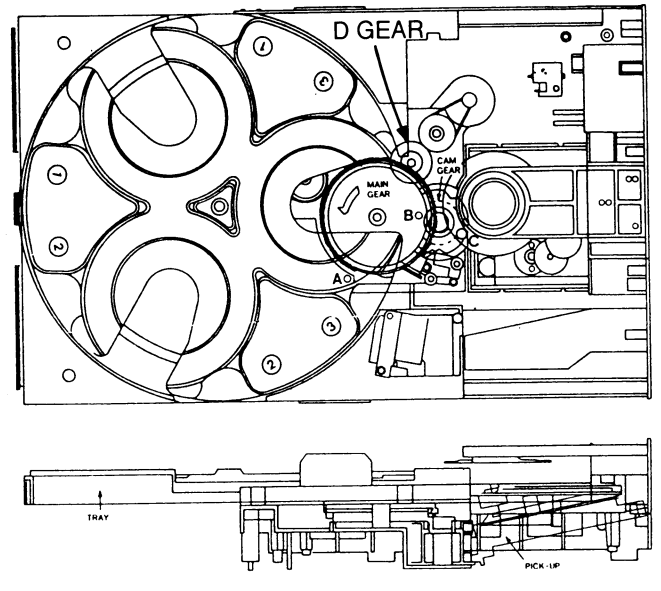
Pin No.	Symbol	I/O	Description
1	AVDD1		Analog Vcc1.
2	DPDO	O	Charge pump output for master PLL
3	DPFIN	I	Filter input for master PLL
4	DPFOUT	O	Filter output for master PLL
5	CNTVOL	I	VCO control voltage for master PLL
6	AVSS1		Analog ground 1
7	DATX	O	Digital audio output
8	XIN	I	X-tal oscillator input
9	XOUT	O	X-tal oscillator output
10	WDCH	O	Word clock of 48 bit/SLOT (Normal speed=88.2kHz, Double speed=176.4kHz)

Pin No.	Symbol	I/O	Description
11	LRCH	O	Channel clock of 48bit/SLOT (Normal speed=44.1kHz, Double speed=88.2kHz)
12	ADATA	O	Serial audio data output of 48bit/SLOT (MSB first)
13	DVSS1		Digital ground 1
14	BCK	O	Audio data bit clock for 48bit/SLOT (Normal speed=2.1168kHz, Double speed=4.2336kHz)
15	C2PO	O	C2 pointer for output audio data
16	VREFL2	I	Input terminal 2 of reference voltage "L" (Floating)
17	VREFL1	I	Input terminal 1 of reference voltage "L" (GND connection)
18	AVDD2		Analog VCC2
19	RCHOUT	O	Right-channel audio output through D/A convertes
20	LCHOUT	O	Left-channel audio output through D/A converter
21	AVSS2		Analog ground 2
22	VREFH1	I	Input terminal 1 of reference voltage "H" (V_{DD} connection)
23	VREFH2	I	Input terminal 2 of reference voltage "H" (Floating)
24	EMPH	O	Emphasis/Non-Emphasis output ("H" : Emphasis)
25	LKFS	O	The lock status output of frame sync
26	SOS1	O	Output of subcode sync signal (S0+S1)
27	RESET	I	System reset at "L"
28	SQEN	I	SQCK I/O control ("L" : Internal CK, "H" : External CK)
29	SQCK	I/O	Clock for output subcode-Q data
30	SQDT	O	Serial output of subcode-Q data
31	SQOK	O	The CRC check result signal output of subcode-Q
32	SBCK	I	Clock for output subcode-Q data
33	SDAT	O	Subcode serial data output
34	$DV_{DD}1$		Digital Vcc1
35	MUTE	I	Mute control input ("H" : Mute ON)
36	MLT	I	Latch signal input from micom
37	MDAT	I	Serial data input from micom
38	MCK	I	Serial clock input from micom
39	DB8	I/O	SRAM data I/O port 8 (MSB)
40	DB7	I/O	SRAM data I/O port 7
41	DB6	I/O	SRAM data I/O port 6
42	DB5	I/O	SRAM data I/O port 5
43	DB4	I/O	SRAM data I/O port 4
44	DB3	I/O	SRAM data I/O port 3
45	DB2	I/O	SRAM data I/O port 2
46	DB1	I/O	SRAM data I/O port 1 (LSB)

Pin No.	Symbol	I/O	Description
47	C1F1	I/O	Monitoring output for C1 error correction (RA1)
48	C1F2	I/O	Monitoring output for C1 error correction (RA2)
49	C2F1	I/O	Monitoring output for C2 error correction (RA3)
50	C2F2	I/O	Monitoring output for C2 error correction (RA4)
51	C2FL	I/O	C2 decoder flag (High : When the processing C2 code is impossible correction state) (RA5)
52	/PBCK	I/O	Output of VCO/2 (Normal speed=4.3218MHz, Double speed=8.6436MHz) (RA6)
53	DV_{SS2}		Digital ground 2
54	FSDW	I/O	Unprotected frame sync (RA7)
55	ULKFS	I/O	Frame sync protection state (RA8)
56	/JIT	I/O	Display of either RAM overflow or underflow for ±4 frame jitter margin (RA9)
57	C4M	I/O	Only monitoring signal (Normal playback : 4.2336MHz) (RA10)
58	C16M	I/O	16.9344MHz signal output (RA11)
59	/WE	I/O	Terminal for test
60	/CS	I/O	Terminal for test
61	SEL1	I	Mode selection terminal 1 (H : 33.8688MHz, L : 16.9344MHz)
62	SEL2	I	Mode selection terminal 2 (H : APLL, L : DPLL)
63	SEL3	I	Mode selection terminal 3 (H : CDROM, L : CDP)
64	SEL4	I	Mode selection terminal 4 (L : Internal SRAM)
65	TEST	I	Test terminal (L=Normal operating state)
66	EFMI	I	EFM signal input
67	APDO	O	Charge pump output for analog PLL
68	/ISTAT	O	The internal status output
69	TRCNT	I	Tracking counter input signal
70	LOCK	O	Output signal of LKFS condition sampled PBFR/16 (If LKFS is ""H", Lock is "H". If the LKFS is sampled "L" at least 8 times by PBFR/16, Lock is "L")
71	PBFR	O	Write frame clock (Lock : 7.35kHz)
72	SMEF	O	LPF time constant control of the spindle servo error signal
73	SMON	O	ON/OFF control signal for spindle servo
74	DV_{DD2}		Digital Vcc2
75	SMPD	O	Spindle motor drive (Rough control in the CLV-S mode/Phase control in the CLV-P mode)
76	SMSD	O	Spindle motor drive (Velocity control in the CLV-P mode)
77	VCO_{O1}	O	VCO output signal (When the state is lock by means of PBFR, it is 8.643MHz)
78	V_{COI1}	I	VCO input signal
79	DSPEED	I	Double speed mode control (H : Normal speed, L : Double speed)
80	APD02	O	Analog PLL charge pump output for double speed mode

REPAIRS REGARDING CD MECHANISM, CASSETTE DOOR WINDOW & FUSE

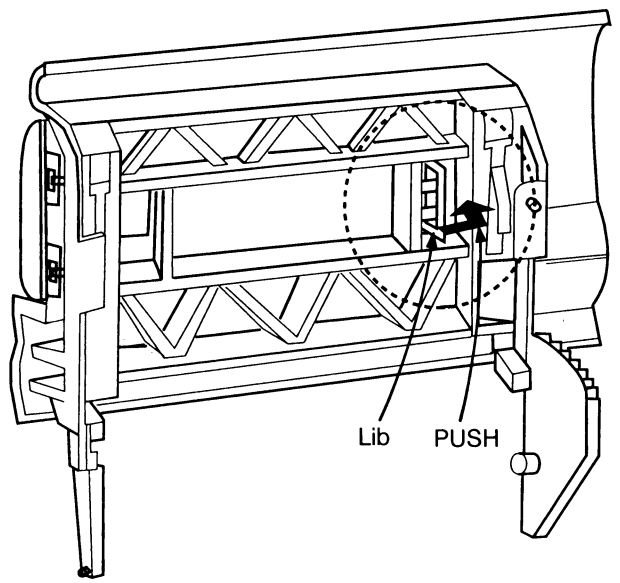
IMPROVED METHOD-WHEN THE TRAY GEARS WERE DISTORTED



1. **How to open the tray**
   In Case of not suppling power, turn the "D" gear located the bottom of mechanism.

2. **How to improve the distorted gears**
   (1) Do the hole "C" of the cam gear to face forward the pick-up so the pick-up is down like figure.
   (2) Do the hole "B" of main gear to face forward pick up, too.
   (3) Set the last part of main gear to point "A".
   (4) Push the tray to end.

HOW TO SEPARATE THE CASSETTE DOOR WINDOW FROM THE CASSETTE DOOR



1. Open the cassette door.
2. After searching a lib retaining the cassette door window inside cassette door.
3. Push a lib located middle position of cassette door to lefthand side (left cassette door).

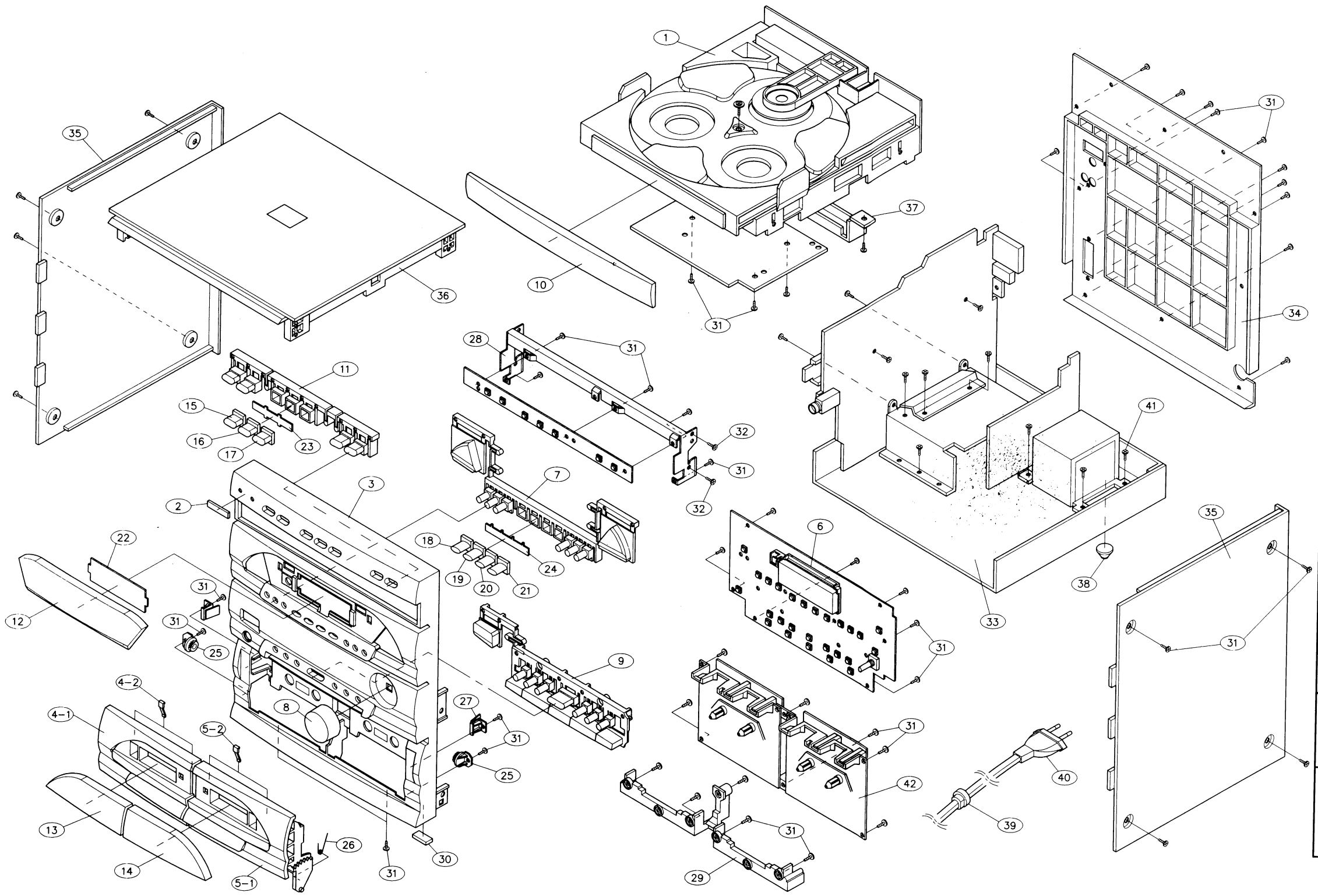
Figure. Cassette Door (Inside View)

NOTE REGARDING POWER UNIT REPAIR (for DUAL VOLTAGE MODEL)

If someone supplied a 110V setting set to 220V power, you MUST replace the primary fuse (F701, T1.6A) and TVS diode (TVSD701, P/N : 668-905X) together.

EXPLODED VIEW/PARTS LIST

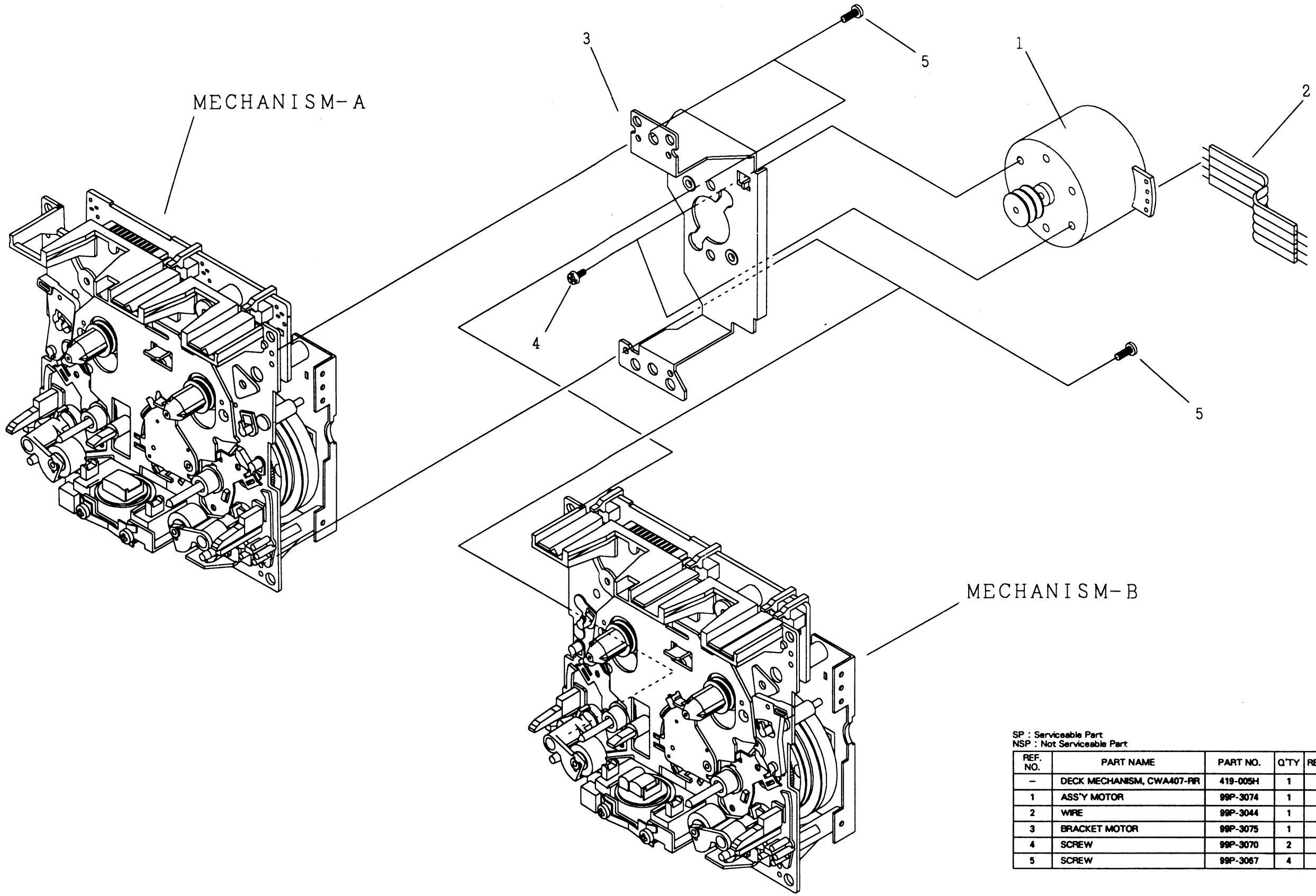
● CABINET



REF. NO.	PART NO.	DESCRIPTION	Q'TY
1	411-411A	Mechanism Assembly, 3-changer CDM-H803	1
2	241-010A	Mark, GoldStar	1
3	3720SCC393A	Panel, Front	1
4	3581SCC393A	Door Sub Assembly, Cassette-Left	1
4-1	3580SCC393A	Door, Cassette-Left	1
4-2	442-211C	Spring	2
5	3581SCC394A	Door Sub Assembly, Cassette-Right	1
5-1	3580SCC394A	Door, Cassette-Right	1
5-2	442-211C	Spring	2
6	4930SCC393A	Holder, FIP	1
7	4940SCC393A	Knob, Function	1
8	4940SCC395A	Knob, Main-Volume	1
9	4940SCC396A	Knob, Tuner	1
10	3580SCC395A	Door, CD	1
11	4940SCC398A	Knob, CD	1
12	3790SCC393A	Window, FIP	1
13	3790SCC394A	Window, Cassette-Left	1
14	3790SCC395A	Window, Cassette-Right	1
15	4940SCC394A	Knob, Light-3	1
16	4940SCC394B	Knob, Lighting-3	1
17	4940SCC394C	Knob, Lighting-3	1
18	4940SCC397A	Knob, Lighting-4	1
19	4940SCC397B	Knob, Lighting-4	1
20	4940SCC397C	Knob, Lighting-4	1
21	4940SCC397D	Knob, Lighting-4	1
22	3858SCC393A	Sheet, FIP	1
23	3858SCC394A	Sheet, Lighting-3	1
24	3858SCC394B	Sheet, Lighting-4	1
25	444-115C	Damper Assembly	2
26	442-085D	Spring	2
27	384-535A	Guide, Eject Assembly	2
28	4810SCC004A	Bracket, MD	1
29	324-383A	Holder, Deck	1
30	472-200E	Felt, 3.2×17.5×8	2
31	353-025C	Screw, Taptite 3×10	58
32	353-025T	Screw, Taptite 3×10.5	4
33	3140SCC500A	Chassis, Main	1
34	3720SCC394B	Panel, Back	1
35	3720SCC007A	Panel, Side	2
36	3090SCC002A	Cabinet, Top	1
37	4810SCC005A	Bracket, MD Frame	1
38	265-013B	Foot, Rubber	2
39	324-620A	Holder, Cord	1
40	681N004F	Cord, Power	1
41	1TRL0402418	Screw, 4×8	4
42	419-005H	Deck Mechanism, CWA407-RR	1

EXPLODED VIEW/PARTS LIST

● TAPE DECK MECHANISM

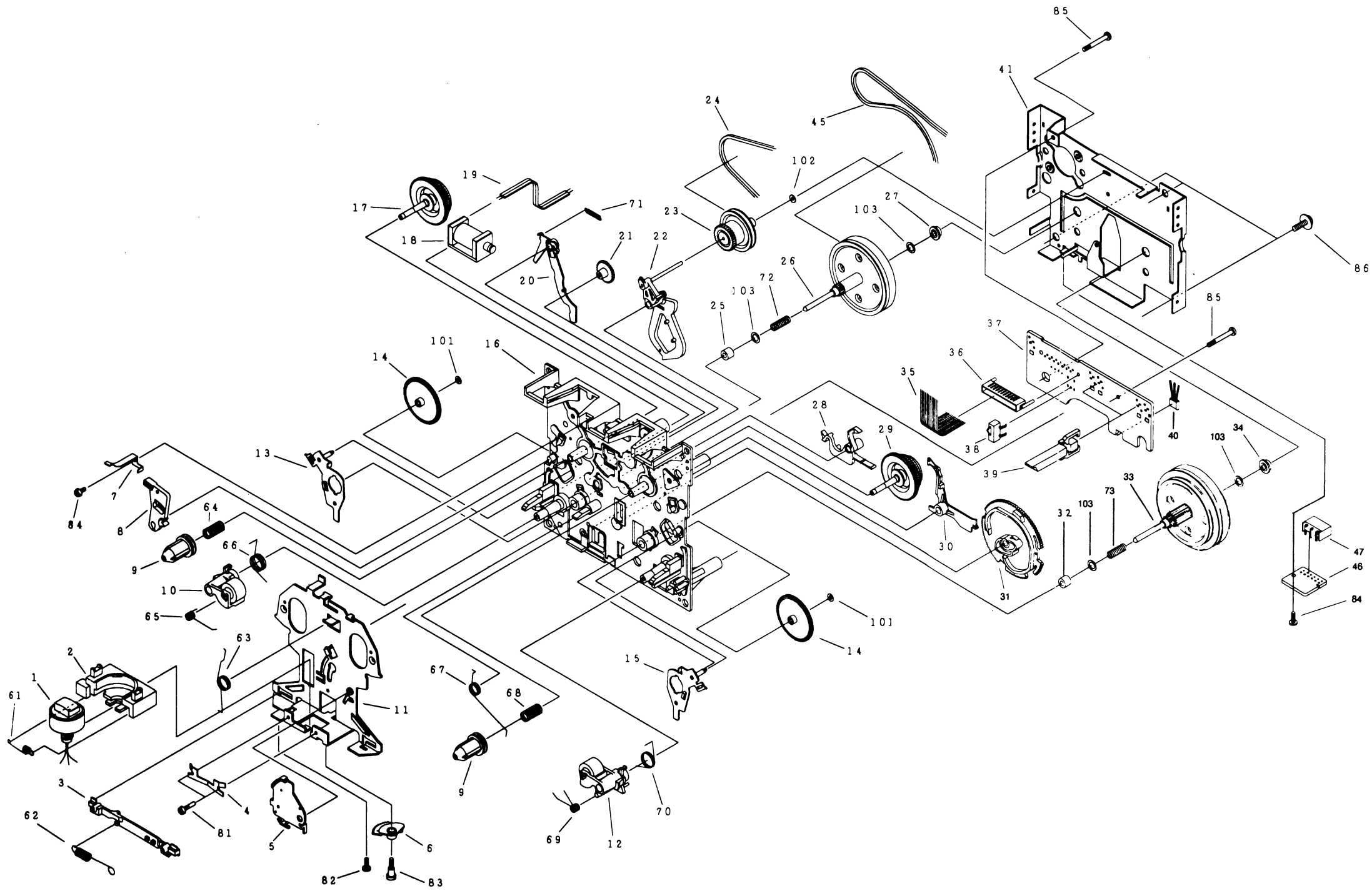


SP : Serviceable Part
NSP : Not Serviceable Part

REF. NO.	PART NAME	PART NO.	Q'TY	REMARK
–	DECK MECHANISM, CWA407-RR	419-005H	1	SP
1	ASS'Y MOTOR	99P-3074	1	SP
2	WIRE	99P-3044	1	NSP
3	BRACKET MOTOR	99P-3075	1	SP
4	SCREW	99P-3070	2	SP
5	SCREW	99P-3067	4	NSP

EXPLODED VIEW/PARTS LIST

● TAPE DECK MECHANISM-A

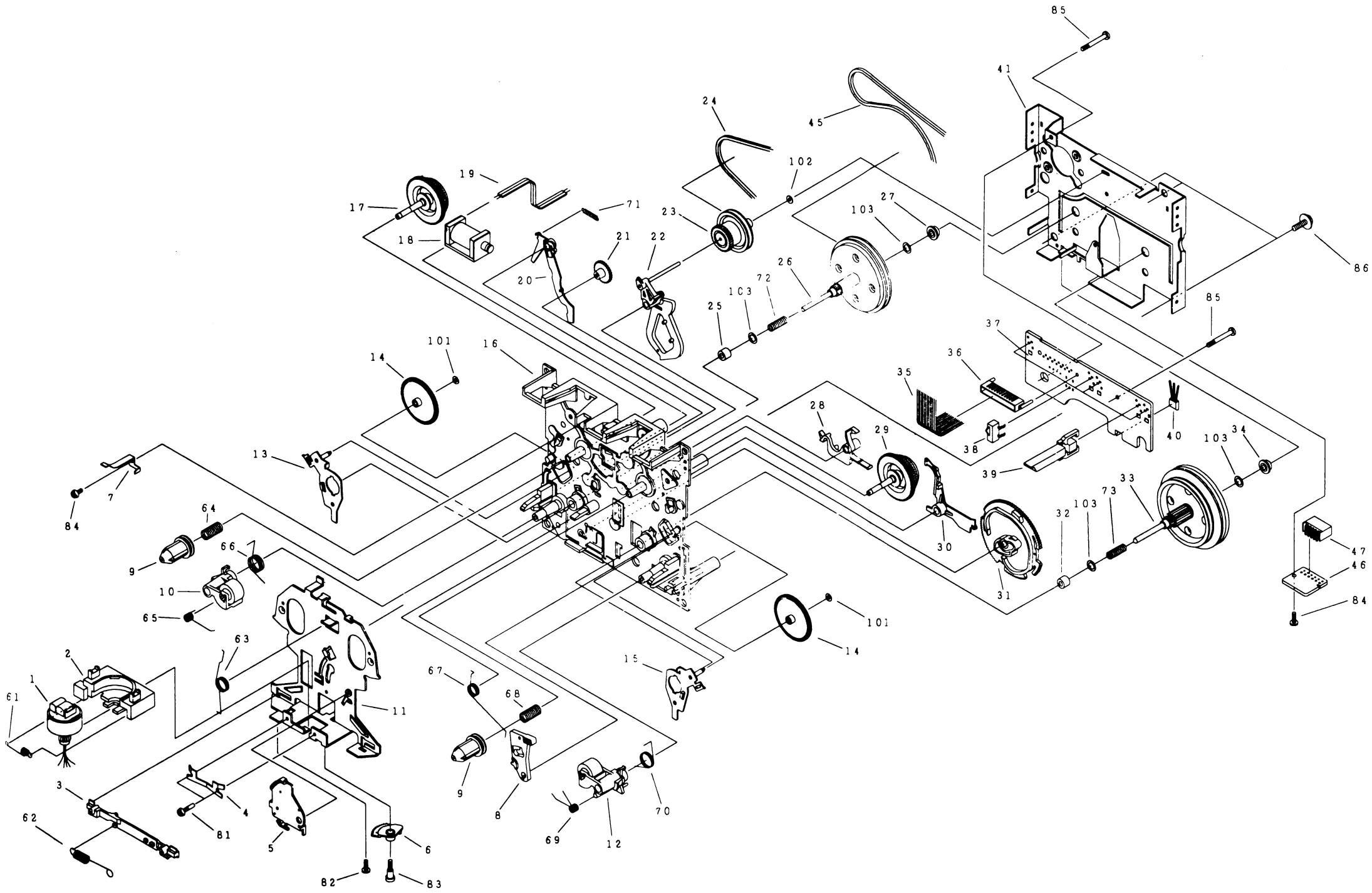


SP : Serviceable Part
NSP : Not Serviceable Part

REF. NO.	PART NAME	PART NO.	Q'TY	REMARK
1	ASS'Y HOLDER HEAD	99P-3076	1	SP
2	FLAME HEAD	99P-3002	1	NSP
3	LEVER HEAD	99P-3003	1	NSP
4	SPRING AZIMUTH	99P-3004	1	NSP
5	ASS'Y ARM ASSIST	99P-3005	1	NSP
6	GEAR ARM HEAD	99P-3006	1	NSP
7	SPRING CASSETTE	99P-3007	1	NSP
8	EJECT LOCK	99P-3008	1	NSP
9	CAP REEL	99P-3009	2	NSP
10	ASS'Y PINCH ARM L	99P-3010	1	NSP
11	CHASSIS HEAD	99P-3011	1	NSP
12	ASS'Y PINCH ARM R	99P-3012	1	NSP
13	ASS'Y ARM PLAY L	99P-3013	1	NSP
14	GEAR PLAY	99P-3014	2	NSP
15	ASS'Y ARM PLAY R	99P-3015	1	NSP
16	CHASSIS OS.	99P-3016	1	NSP
17	ASS'Y SUR REEL L	99P-3017	1	NSP
18	SOLENOID	99P-3077	1	SP
19	WIRE	99P-3019	1	SP
20	ARM RVS	99P-3020	1	SP
21	GEAR FF	99P-3021	1	NSP
22	ASS'Y ARM FR	99P-3022	1	NSP
23	ASS'Y PULLEY FR	99P-3023	1	NSP
24	BELT FR	99P-3024	1	NSP
25	METAL	99P-3025	1	NSP
26	ASS'Y FLYWHEEL L	99P-3026	1	SP
27	METAL	99P-3027	1	NSP
28	ARM BRAKE	99P-3028	1	NSP
29	ASS'Y SUB REEL R	99P-3029	1	NSP
30	ARM TRIGER	99P-3030	1	NSP
31	GEAR CAM	99P-3031	1	NSP
32	METAL	99P-3032	1	NSP
33	ASS'Y FLYWHEEL R	99P-3033	1	SP
34	METAL	99P-3034	1	NSP
35	WIRE (11P)	99P-3078	1	SP
36	HOLDER WIRE	99P-3036	1	SP
37	P.C. BOARD	99P-3037	1	SP
38	SWITCH MODE	99P-3038	1	SP
39	SWITCH (LEAF)	99P-3039	2	SP
40	HALL IC.	99P-3040	1	SP
45	BELT MAIN	99P-3070	1	SP
46	P.C. BOARD	99P-3046	1	SP
47	HOUSING	99P-3050	1	SP
61	SPRING	99P-3051	1	NSP
62	SPRING	99P-3052	1	NSP
63	SPRING	99P-3053	1	NSP
64	SPRING	99P-3054	1	NSP
65	SPRING	99P-3055	1	NSP
66	SPRING	99P-3056	1	NSP
67	SPRING	99P-3057	1	NSP
68	SPRING	99P-3058	1	NSP
69	SPRING	99P-3059	1	NSP
70	SPRING	99P-3060	1	NSP
71	SPRING	99P-3061	1	NSP
72	SPRING	99P-3062	1	NSP
73	SPRING	99P-3063	1	NSP
81	SCREW	99P-3064	2	NSP
82	SCREW	99P-3065	1	NSP
83	SCREW	99P-3066	1	NSP
84	SCREW	99P-3067	2	NSP
85	SCREW	99P-3068	2	NSP
86	SCREW	99P-3069	3	NSP
101	WASHER	99P-3071	2	NSP
102	WASHER	99P-3072	1	NSP
103	WASHER	99P-3073	4	NSP

EXPLODED VIEW/PARTS LIST

● TAPE DECK MECHANISM-B

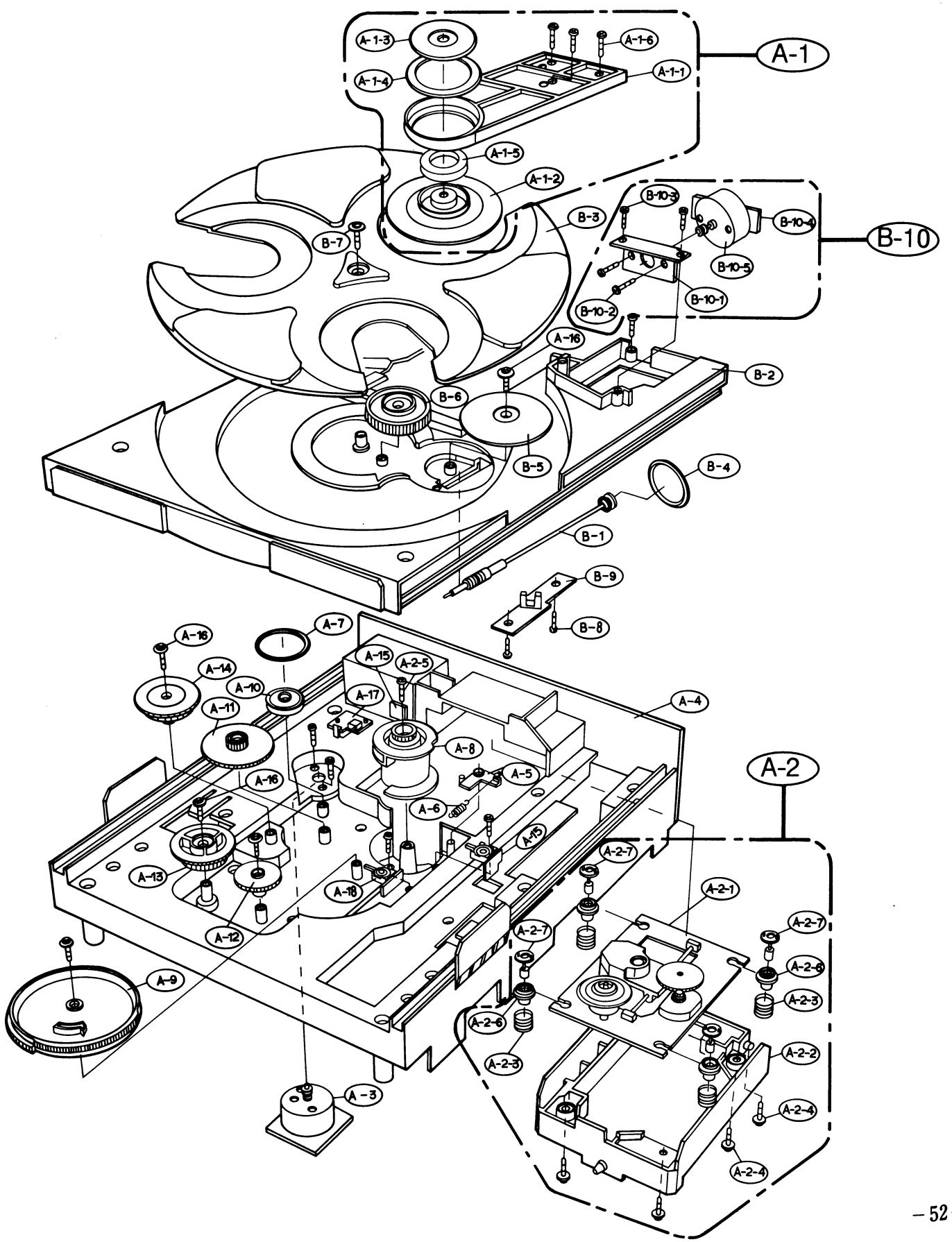


SP : Serviceable Part
NSP : Not Serviceable Part

REF. NO.	PART NAME	PART NO.	Q'TY	REMARK
1	ASS'Y HOLDER HEAD	99P-3084	1	SP
2	FLAME HEAD	99P-3002	1	NSP
3	LEVER HEAD	99P-3003	1	NSP
4	SPRING AZIMUTH	99P-3004	1	NSP
5	ASS'Y ARM ASSIST	99P-3005	1	NSP
6	GEAR ARM HEAD	99P-3006	1	NSP
7	SPRING CASSETTE	99P-3007	1	NSP
8	EJECT LOCK	99P-3008	1	NSP
9	CAP REEL	99P-3009	2	NSP
10	ASS'Y PINCH ARM L	99P-3010	1	NSP
11	CHASSIS HEAD	99P-3011	1	NSP
12	ASS'Y PINCH ARM R	99P-3012	1	NSP
13	ASS'Y ARM PLAY L	99P-3013	1	NSP
14	GEAR PLAY	99P-3014	2	NSP
15	ASS'Y ARM PLAY R	99P-3015	1	NSP
16	CHASSIS OS.	99P-3016	1	NSP
17	ASS'Y SUR REEL L	99P-3017	1	NSP
18	SOLENOID	99P-3077	1	SP
19	WIRE	99P-3019	1	SP
20	ARM RVS	99P-3020	1	SP
21	GEAR FF	99P-3021	1	NSP
22	ASS'Y ARM FR	99P-3022	1	NSP
23	ASS'Y PULLEY FR	99P-3023	1	NSP
24	BELT FR	99P-3024	1	NSP
25	METAL	99P-3025	1	NSP
26	ASS'Y FLYWHEEL L	99P-3081	1	SP
27	METAL	99P-3027	1	NSP
28	ARM BRAKE	99P-3028	1	NSP
29	ASS'Y SUB REEL R	99P-3029	1	NSP
30	ARM TRIGER	99P-3030	1	NSP
31	GEAR CAM	99P-3031	1	NSP
32	METAL	99P-3032	1	NSP
33	ASS'Y FLYWHEEL R2	99P-3082	1	SP
34	METAL	99P-3034	1	NSP
35	WIRE (13P)	99P-3035	1	SP
36	HOLDER WIRE	99P-3036	1	SP
37	P.C. BOARD	99P-3037	1	SP
38	SWITCH MODE	99P-3038	1	SP
39	SWITCH (LEAF)	99P-3039	4	SP
40	HALL IC.	99P-3040	1	SP
41	BRACKET FW	99P-3041	1	SP
45	BELT MAIN	99P-3083	1	SP
46	P.C. BOARD	99P-3046	1	SP
47	HOUSING	99P-3047	1	SP
61	SPRING	99P-3051	1	NSP
62	SPRING	99P-3052	1	NSP
63	SPRING	99P-3053	1	NSP
64	SPRING	99P-3054	1	NSP
65	SPRING	99P-3055	1	NSP
66	SPRING	99P-3056	1	NSP
67	SPRING	99P-3057	1	NSP
68	SPRING	99P-3058	1	NSP
69	SPRING	99P-3059	1	NSP
70	SPRING	99P-3060	1	NSP
71	SPRING	99P-3061	1	NSP
72	SPRING	99P-3062	1	NSP
73	SPRING	99P-3063	1	NSP
81	SCREW	99P-3064	2	NSP
82	SCREW	99P-3065	1	NSP
83	SCREW	99P-3066	1	NSP
84	SCREW	99P-3067	2	NSP
85	SCREW	99P-3068	2	NSP
86	SCREW	99P-3069	3	NSP
101	WASHER	99P-3071	2	NSP
102	WASHER	99P-3072	1	NSP
103	WASHER	99P-3073	4	NSP

EXPLODED VIEW/PARTS LIST

● CD MECHANISM



REF. NO.	PART NO.	PART NAME	Q'TY
	411-411A	MECHANISM ASSEMBLY, 3-CHANGER CDM-H803	1
A	411-803A	MECHANISM ASSEMBLY, BASE MAIN(CDM-H803)	1
A-1	322-803A	SUPPORTER, CLAMP ASSEMBLY	1
A-1-1	322-014A	SUPPORTER, CLAMP	1
A-1-2	327-014A	CLAMP, DISC	1
A-1-3	221-438A	COVER, MAGNET	1
A-1-4	384-003A	GUIDE, CLAMP	1
A-1-5	524-012A	COVER, CLAMP MAGNET	1
A-1-6	353-025K	SCREW, TAPTITE 3×12	3
A-2	225-803A	BASE, P/U ASSEMBLY	1
A-2-1	411-045E	MECHANISM ASSEMBLY, KSM-2101ADM	1
A-2-2	225-231A	BASE, PU	1
A-2-3	442-717A	SPRING, ANTI-VIB	4
A-2-4	88H-0001	SCREW, 2.6×6×7	4
A-2-5	88H-0002	SCREW, 3×9×12	2
A-2-6	477-106A	RUBBER, ANTI-VIB	4
A-2-7	322-018A	SUPPORTER, SPRING	4
A-3	414-803A	MOTOR ASSEMBLY	1
A-4	225-230A	BASE, MAIN	1
A-5	384-005A	GUIDE, CAM	1
A-6	442-078A	SPRING, CAM	1
A-7	451-149A	BELT, A	1
A-8	435-090A	GEAR, CAM	1
A-9	435-091A	GEAR, MAIN	1
A-10	435-092A	GEAR, PULLEY	1
A-11	435-093A	GEAR, LOADING	1
A-12	435-094A	GEAR, PU-UP A	1
A-13	435-095A	GEAR, PU-UP B	1
A-14	435-096A	GEAR, PU-DOWN	1
A-15	384-044A	GUIDE, TRAY	1
A-16	353-025B	SCREW, TAPTITE 3×8	7
A-17	6871SB21RAA	3CH M/D U/D/O/C PCB ASSEMBLY	1
A-18	6871SD21RAA	3CH M/D CAM PCB ASSEMBLY	1
A-19	6871SC21RAA	3CH M/D OPEN PCB ASSEMBLY	1
B	411-804A	MECHANISM ASSEMBLY, TRAY LOADING(CDM-H803)	1
B-1	423-803A	SHAFT, TRAY ASSEMBLY	1
B-2	318-011A	TRAY, LOADING	1
B-3	318-012A	TRAY, DISC-3	1
B-4	451-149B	BELT B	1
B-5	435-098A	GEAR, TRAY A	1
B-6	435-099A	GEAR, TRAY B	1
B-7	88H-0004	SCREW, TAPTITE 3×12×12	1
B-8	88H-0002	SCREW, TAPPING WASHER 3×9×12	2
B-9	6871SF21RAA	3CH M/D SENSOR PCB ASSEMBLY	1
B-10	414-804A	TRAY MOTOR ASSEMBLY	1
B-10-1	4810S-0541A	BRACKET, MOTOR	1
B-10-2	353S353G	SCREW, BIND MACHINE	2
B-10-3	353-025B	SCREW, TAPTITE 3×8	2
B-10-4	6871SE21RAA	3CH, M/D TRAY PCB ASSEMBLY	1
B-10-5	414-803B	MOTOR ASSEMBLY	1

NOTE : Ref.No. shows a group unit of assembly.

ELECTRICAL PARTS LIST

NOTE : Parts marked with " ⚠ " are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
		ICs	
	IC101	0ISA183200A	LA1832 ST AM/FM IF+MPX IC
	IC102	0ISA721800A	LC7218 PLL,SANYO
	IC103	0IKE780500A	KE7805 3SIP LIN
	IC301	0ISA324600A	LA3246 PRE AMP P/B SANYO (S)
	IC302	0IHI121360C	HA12136A DOLBY-B DILP-16,HITA
	IC303	0IS0129800A	CXA1298AP REC EQ
	IC304	0IRH312600A	BA3126N HI-VOL HEAD S/W,ROHM/
	IC401	0ISA866224H	LC866224A-5835 TY FFH-393 MCU
	IC402	0IMT572009B	PST572E-2 TP 3.9V,MITSUMI
	IC701	0INS187600A	LM1876TF ST DUAL-15W POWER
	IC702	0ISG731800B	TDA7318 DIP28 ELEC V/R,SGS-T
	IC703	0IKE780500A	KE7805 3SIP LIN
	IC704	0IKE781200B	KIA7812PI 12V 1A,KEC
	IC705	0IKE781200B	KIA7812PI 12V 1A,KEC
	IC706	0ISS791200A	KA7912 ST REGULATOR IC
	IC801	0ISS922000A	KA9220 TY 80-QFP-1420C ASP
	IC802	0ISS925800A	KA9258D-T1 4CH DRIVER,S/S
	IC803	0IRH620900A	BA6209 MOTOR DRIVER
	IC804	0ISS928200B	KS9282B TY DSP FOR CDP
	IC805	0ISS927000B	KA9270 ST (DIP) AUDIO FILTER
	IC806	0IRH620900B	BA6209N MOTOR DRIVER
	RMC401	0IRH676000A	RPM-676CBR-L SENSOR RMC,ROHMJ
		TRANSISTORS	
	Q101	0TR319209AA	KTC3192-0 TP,KEC(KTC3807M-0)
	Q102	0TR126709AB	KTA1267-Y MINI TP,KEC
	Q103	0TR102009AF	KRC102M TP,KEC(KRC1202)
	Q104	0TR110009AE	KRC110M TP,KEC(KRC1210)
	Q105	0TR110009AE	KRC110M TP,KEC(KRC1210)
	Q107	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC
	Q108	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC
	Q109	0TR110009AE	KRC110M TP,KEC(KRC1210)
	Q110	0TR110009AE	KRC110M TP,KEC(KRC1210)
	Q111	0TR102009AF	KRC102M TP,KEC(KRC1202)
	Q112	0TR102009AF	KRC102M TP,KEC(KRC1202)
	Q113	0TR102009AF	KRC102M TP,KEC(KRC1202)
	Q120	0TR102009AE	KRA102M TP,KEC(KRA2202)
	Q138	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC
	Q139	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC
	Q202	0TR114009AE	DTC114TS-TP S/W ROHM
	Q203	0TR114009AE	DTC114TS-TP S/W ROHM
	Q204	0TR114009AE	DTC114TS-TP S/W ROHM
	Q205	0TR114009AE	DTC114TS-TP S/W ROHM
	Q206	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC
	Q207	0TR114009AE	DTC114TS-TP S/W ROHM
	Q209	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC
	Q210	0TR103009AF	KRA103M TP,KEC(KRA2203)
	Q211	0TR103009AE	KRC103M TP,KEC(KRC1203)
	Q213	0TR114009AE	DTC114TS-TP S/W ROHM
	Q217	0TR114009AE	DTC114TS-TP S/W ROHM
	Q218	0TR114009AE	DTC114TS-TP S/W ROHM
	Q219	0TR114009AE	DTC114TS-TP S/W ROHM
	Q220	0TR114009AA	DTA114ES ROHM

S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
	Q221	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC
	Q222	0TR320509AB	KTC3205-TP-Y (KTC2236A)KEC
	Q227	0TR130209AA	KTD1302 MUTING TP,KEC
	Q228	0TR320509AB	KTC3205-TP-Y (KTC2236A)KEC
	Q231	0TR320509AB	KTC3205-TP-Y (KTC2236A)KEC
	Q234	0TR320509AB	KTC3205-TP-Y (KTC2236A)KEC
	Q237	0TR127309AA	KTA1273-TP-Y (KTA966A)KEC
	Q238	0TR114009AE	DTC114TS-TP S/W ROHM
	Q239	0TR114009AA	DTA114ES ROHM
	Q240	0TR126609AA	KTA1266-TP-Y (KTA1015) KEC
	Q241	0TR114009AE	DTC114TS-TP S/W ROHM
	Q243	0TR114009AA	DTA114ES ROHM
	Q244	0TR114009AA	DTA114ES ROHM
	Q303	0TR114009AE	DTC114TS-TP S/W ROHM
	Q304	0TR114009AE	DTC114TS-TP S/W ROHM
	Q306	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC
	Q309	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC
	Q313	0TR114009AE	DTC114TS-TP S/W ROHM
	Q401	0TR319809AB	KTC3198-TP-GR (KTC1815) KEC
	Q402	0TR114009AA	DTA114ES ROHM
	Q403	0TR114009AA	DTA114ES ROHM
	Q404	0TR102009AF	KRC102M TP,KEC(KRC1202)
	Q703	0TR102009AE	KRA102M TP,KEC(KRA2202)
	Q704	0TR114009AE	DTC114TS-TP S/W ROHM
	Q705	0TR114009AE	DTC114TS-TP S/W ROHM
	Q706	0TR320509AB	KTC3205-TP-Y (KTC2236A)KEC
	Q707	0TR127309AA	KTA1273-TP-Y (KTA966A)KEC
	Q781	0TR127309AA	KTA1273-TP-Y (KTA966A)KEC
	Q801	0TR126609AA	KTA1266-TP-Y (KTA1015) KEC
	Q806	0TR127309AA	KTA1273-TP-Y (KTA966A)KEC
	Q807	0TR319809AA	KTC3198-TP-Y (KTC1815)KEC
	Q808	0TR135100AG	KTD1351-Y (KTD880A-Y) KEC
		DIODES	
	D101	0DD132009AA	1SS132 DETECT,SW TP
	D102	0DD132009AA	1SS132 DETECT,SW TP
	D104	0DD132009AA	1SS132 DETECT,SW TP
	D105	0DD132009AA	1SS132 DETECT,SW TP
	D111	0DD132009AA	1SS132 DETECT,SW TP
	D115	0DD132009AA	1SS132 DETECT,SW TP
	D201	0DD132009AA	1SS132 DETECT,SW TP
	D203	0DD132009AA	1SS132 DETECT,SW TP
	D204	0DD132009AA	1SS132 DETECT,SW TP
	D205	0DD132009AA	1SS132 DETECT,SW TP
	D216	0DD132009AA	1SS132 DETECT,SW TP
	D217	0DD400209DA	1N4002,RECT,ROHM,TP
	D218	0DD400209DA	1N4002,RECT,ROHM,TP
	D402	0DD132009AA	1SS132 DETECT,SW TP
	D404	0DD132009AA	1SS132 DETECT,SW TP
	D406	0DD132009AA	1SS132 DETECT,SW TP
	D409	0DD132009AA	1SS132 DETECT,SW TP
	D412	0DD132009AA	1SS132 DETECT,SW TP
	D413	0DD132009AA	1SS132 DETECT,SW TP
	D414	0DD132009AA	1SS132 DETECT,SW TP
	D415	0DD132009AA	1SS132 DETECT,SW TP

S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
	D416	0DD132009AA	1SS132 DETECT,SW TP
	D418	0DD132009AA	1SS132 DETECT,SW TP
	D419	0DD132009AA	1SS132 DETECT,SW TP
	D425	0DD132009AA	1SS132 DETECT,SW TP
	D702	0DD132009AA	1SS132 DETECT,SW TP
	D703	0DD132009AA	1SS132 DETECT,SW TP
	D704	0DD352009BA	1SR35-200A T-93X 2K TP ROHM/K
	D705	0DD604000CA	PBPC604,BRIDGE,SILITEK
	D781	0DD400209DA	1N4002,RECT,ROHM,TP
	D782	0DD400209DA	1N4002,RECT,ROHM,TP
	D783	0DD400209DA	1N4002,RECT,ROHM,TP
	D795	0DD132009AA	1SS132 DETECT,SW TP
	D796	0DD132009AA	1SS132 DETECT,SW TP
	D801	0DD132009AA	1SS132 DETECT,SW TP
	D802	0DD400209DA	1N4002,RECT,ROHM,TP
	D803	0DD400209DA	1N4002,RECT,ROHM,TP
	D804	0DD400209DA	1N4002,RECT,ROHM,TP
	D805	0DD132009AA	1SS132 DETECT,SW TP
		LEDs	
	LD401	0DL310009AC	SLV-31MC 83F 215,GN,ROHM-K
	LD402	0DL310009AC	SLV-31MC 83F 215,GN,ROHM-K
	LD403	0DL310009AC	SLV-31MC 83F 215,GN,ROHM-K
	LD404	0DL310009AC	SLV-31MC 83F 215,GN,ROHM-K
	LD405	0DL310009AC	SLV-31MC 83F 215,GN,ROHM-K
	LD406	0DL310009AC	SLV-31MC 83F 215,GN,ROHM-K
	LD407	0DL310009AC	SLV-31MC 83F 215,GN,ROHM-K
	LD408	0DL310009AC	SLV-31MC 83F 215,GN,ROHM-K
	LD901	0DL310009AC	SLV-31MC 83F 215,GN,ROHM-K
	LD902	0DL310009AC	SLV-31MC 83F 215,GN,ROHM-K
	LD903	0DL310009AC	SLV-31MC 83F 215,GN,ROHM-K
	LD904	0DL310009AC	SLV-31MC 83F 215,GN,ROHM-K
	LD905	0DL310009AC	SLV-31MC 83F 215,GN,ROHM-K
	LD906	0DL310009AC	SLV-31MC 83F 215,GN,ROHM-K
		VARACTOR DIODES	
	VC101	0DD123600AB	,VARACTOR KV1236Z2 TOKO
	VC102	0DD123600AB	,VARACTOR KV1236Z2 TOKO
		ZENER DIODES	
	ZD101	0DZ620009EA	MTZ6.2-B T-77 6.2V TP,ROHM/K
	ZD401	0DZ680009CC	MTZ6.8C-T-77 ROHM-K
	ZD402	0DZ680009CC	MTZ6.8C-T-77 ROHM-K
	ZD403	0DZ680009CC	MTZ6.8C-T-77 ROHM-K
	ZD404	0DZ680009CC	MTZ6.8C-T-77 ROHM-K
	ZD405	0DZ680009CC	MTZ6.8C-T-77 ROHM-K
	ZD702	0DZ910009EE	MTZ9.1C-T-77 ROHM-K
	ZD781	0DZ240009CE	MTZ24D-T-77 ROHM-K
	ZD782	0DZ510009HA	MTZ5.1-B T-77 5.1V TP,ROHM/K
	ZD801	0DZ510009HA	MTZ5.1-B T-77 5.1V TP,ROHM/K
	ZD802	0DZ330009AG	MTZ3.3B-T-77 ROHM-K
	ZD803	0DZ680009CC	MTZ6.8C-T-77 ROHM-K
	ZD804	0DZ510009HA	MTZ5.1-B T-77 5.1V TP,ROHM/K
	ZD805	0DZ510009HA	MTZ5.1-B T-77 5.1V TP,ROHM/K
	ZD807	0DZ510009HA	MTZ5.1-B T-77 5.1V TP,ROHM/K
	ZD811	0DZ330009AG	MTZ3.3B-T-77 ROHM-K
	ZD806	0DZ510009HA	MTZ5.1-B T-77 5.1V TP,ROHM/K

S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
		CAPACITORS	
	C102	0CN1030F678	0.01M 16V M Y TA26
	C104	0CN2230H948	0.022UF 25V Z F TA26
	C107	0CY3910K499	390PF 50V J PSR-HT TP
	C108	0CX6800K408	68P 50V J SL TA26
	C109	0CY1610K499	160PF 50V J PSR-HT TP
	C112	0CN4730K948	0.047UF 50V Z F TA26
	C113	0CN4730K948	0.047UF 50V Z F TA26
	C114	0CE1056K618	1.0M SMS 50V M FL TP(5)
	C116	0CN4730K948	0.047UF 50V Z F TA26
	C117	0CN1020K518	1000P 50V K B TA26
	C119	0CN4730K948	0.047UF 50V Z F TA26
	C121	0CN2230H948	0.022UF 25V Z F TA26
	C122	0CN2230H948	0.022UF 25V Z F TA26
	C124	0CN2230H948	0.022UF 25V Z F TA26
	C125	0CE1066J618	10M SMS 35V M FL TP(5)
	C127	0CE3356K618	3.3M SMS 50V M FL TP(5)
	C130	0CN2230H948	0.022UF 25V Z F TA26
	C131	0CE2256K618	2.2M SMS 50V M FL TP(5)
	C132	0CE1056K618	1.0M SMS 50V M FL TP(5)
	C133	0CE1066J618	10M SMS 35V M FL TP(5)
	C134	0CE1066J618	10M SMS 35V M FL TP(5)
	C137	0CK1040K945	0.1UF 50V Z F TS
	C138	0CE2266F618	22M SMS 16V M FM5 TP(5)
	C139	0CN8220F678	8200P 16V M Y TA26
	C140	0CN3310K518	330P 50V K B TA26
	C141	0CC1010K415	100P 50V J NP0 TS
	C142	0CE3356K618	3.3M SMS 50V M FL TP(5)
	C143	0CQ1831N409	0.018U 100V J POLY TP
	C144	0CQ1831N409	0.018U 100V J POLY TP
	C145	0CE1056K618	1.0M SMS 50V M FL TP(5)
	C146	0CX3900K408	39P 50V J SL TA26
	C147	0CX3900K408	39P 50V J SL TA26
	C148	0CN2230H948	0.022UF 25V Z F TA26
	C149	0CN1010K518	100P 50V K B TA26
	C150	0CN1020K518	1000P 50V K B TA26
	C151	0CN1020K518	1000P 50V K B TA26
	C152	0CN1020K518	1000P 50V K B TA26
	C153	0CN2230H948	0.022UF 25V Z F TA26
	C155	0CN4730K948	0.047UF 50V Z F TA26
	C156	0CN4730K948	0.047UF 50V Z F TA26
	C163	0CN2230H948	0.022UF 25V Z F TA26
	C170	0CE1076F618	100M SMS 16V M FM5 TP(5)
	C201	0CN3310K518	330P 50V K B TA26
	C202	0CN3310K518	330P 50V K B TA26
	C204	0CN4710K518	470P 50V K B TA26
	C205	0CN4710K518	470P 50V K B TA26
	C206	0CE2266F618	22M SMS 16V M FM5 TP(5)
	C207	0CQ1231N409	0.012U 100V J POLY TP
	C208	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C209	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C210	0CQ1031N409	0.01U 100V J POLY TP
	C211	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C212	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C213	0CE4766F618	47M SMS 16V M FL TP(5)
	C214	0CE1076F618	100M SMS 16V M FM5 TP(5)
	C216	0CN1010K518	100P 50V K B TA26
	C217	0CN1020K518	1000P 50V K B TA26
	C218	0CE1056K618	1.0M SMS 50V M FL TP(5)
	C219	0CN8210K518	820P 50V K B TA26
	C221	0CE4766F618	47M SMS 16V M FL TP(5)

S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
	C222	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C223	0CE1056K618	1.0M SMS 50V M FL TP(5)
	C224	0CE2266F618	22M SMS 16V M FM5 TP(5)
	C225	0CE1066J618	10M SMS 35V M FL TP(5)
	C226	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C227	0CE2246K618	0.22M SMS 50V M FM5 TP(5)
	C228	0CE1056K618	1.0M SMS 50V M FL TP(5)
	C229	0CE4746K618	0.47M SMS 50V M FL TP(5)
	C230	0CN2230H948	0.022UF 25V Z F TA26
	C233	0CE1066J618	10M SMS 35V M FL TP(5)
	C236	0CE2256K618	2.2M SMS 50V M FL TP(5)
	C237	0CE1056K618	1.0M SMS 50V M FL TP(5)
	C238	0CE2256K618	2.2M SMS 50V M FL TP(5)
	C239	0CE1076F618	100M SMS 16V M FM5 TP(5)
	C240	0CE1066J618	10M SMS 35V M FL TP(5)
	C241	0CE4766F618	47M SMS 16V M FL TP(5)
	C242	0CE4766F618	47M SMS 16V M FL TP(5)
	C243	0CE1076F618	100M SMS 16V M FM5 TP(5)
	C246	0CE3366F618	33M SMS 16V M FL TP(5)
	C247	0CE1076D618	100M SMS 10V M FM5 TP(5)
	C248	0CE3366F618	33M SMS 16V M FL TP(5)
	C249	0CN1020K518	1000P 50V K B TA26
	C250	0CN1510K518	150P 50V K B TA26
	C251	0CN1010K518	100P 50V K B TA26
	C252	0CC2010K405	200P 50V J SL TS
	C253	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C261	0CQ1221R449	1200P 250V J PYLN TP
	C262	0CQ3921N409	0.0039U 100V J POLY TP
	C264	0CE1076F618	100M SMS 16V M FM5 TP(5)
	C265	0CQ5631N409	0.056U 100V J POLY TP
	C268	0CQ1531N409	0.015U 100V J POLY TP
	C273	0CE1066J618	10M SMS 35V M FL TP(5)
	C274	0CE3366F618	33M SMS 16V M FL TP(5)
	C275	0CE2266F618	22M SMS 16V M FM5 TP(5)
	C276	0CN2230H948	0.022UF 25V Z F TA26
	C278	0CE2266F618	22M SMS 16V M FM5 TP(5)
	C290	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C292	672-001A	TIN WIRE
	C301	0CN3310K518	330P 50V K B TA26
	C302	0CN3310K518	330P 50V K B TA26
	C304	0CN4710K518	470P 50V K B TA26
	C305	0CN4710K518	470P 50V K B TA26
	C306	0CE2266F618	22M SMS 16V M FM5 TP(5)
	C307	0CQ1231N409	0.012U 100V J POLY TP
	C310	0CQ1031N409	0.01U 100V J POLY TP
	C311	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C316	0CN1010K518	100P 50V K B TA26
	C317	0CN1020K518	1000P 50V K B TA26
	C318	0CE1056K618	1.0M SMS 50V M FL TP(5)
	C319	0CN8210K518	820P 50V K B TA26
	C322	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C326	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C327	0CE2246K618	0.22M SMS 50V M FM5 TP(5)
	C328	0CE1056K618	1.0M SMS 50V M FL TP(5)
	C329	0CE4746K618	0.47M SMS 50V M FL TP(5)
	C336	0CE2256K618	2.2M SMS 50V M FL TP(5)
	C337	0CE1056K618	1.0M SMS 50V M FL TP(5)
	C338	0CE2256K618	2.2M SMS 50V M FL TP(5)
	C349	0CN1020K518	1000P 50V K B TA26
	C350	0CN1510K518	150P 50V K B TA26
	C351	0CN1010K518	100P 50V K B TA26
	C352	0CC2010K405	200P 50V J SL TS

S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
	C401	0CK1040K945	0.1UF 50V Z F TS
	C402	0CK1040K945	0.1UF 50V Z F TS
	C403	0CN2230H948	0.022UF 25V Z F TA26
	C404	0CX3300K408	33P 50V J SL TA26
	C405	0CX3300K408	33P 50V J SL TA26
	C406	0CX2000K418	20P 50V J NPO TA26
	C407	0CX2000K418	20P 50V J NPO TA26
	C408	0CX5600K408	56P 50V J SL TA26
	C409	0CN2230H948	0.022UF 25V Z F TA26
	C410	0CE1076D618	100M SMS 10V M FM5 TP(5)
	C411	0CN4730K948	0.047UF 50V Z F TA26
	C412	624-034D	GOLD,EECF5R5U104 0.1F/5.5V
	C413	0CE1056K618	1.0M SMS 50V M FL TP(5)
	C414	0CN2230H948	0.022UF 25V Z F TA26
	C415	0CE2276D618	220M SMS 10V M FM5 TP(5)
	C417	0CE4766F618	47M SMS 16V M FL TP(5)
	C418	0CE1066J618	10M SMS 35V M FL TP(5)
	C430	0CN2230H948	0.022UF 25V Z F TA26
	C702	0CN1030F678	0.01M 16V M Y TA26
	C703	0CK1030K515	0.01M 50V K B TS
	C705	0CQ1041N409	0.1U 100V J POLY TP
	C706	0CN4710K518	470P 50V K B TA26
	C708	0CE2266F618	22M SMS 16V M FM5 TP(5)
	C709	0CE2256K618	2.2M SMS 50V M FL TP(5)
	C710	0CE1066J618	10M SMS 35V M FL TP(5)
	C711	0CN4710K518	470P 50V K B TA26
	C712	0CN4730K948	0.047UF 50V Z F TA26
	C713	0CE3346K618	0.33M SMS 50V M FL TP(5)
	C714	0CN4730K948	0.047UF 50V Z F TA26
	C715	0CE3346K618	0.33M SMS 50V M FL TP(5)
	C716	0CE2256K618	2.2M SMS 50V M FL TP(5)
	C717	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C718	0CE2266F618	22M SMS 16V M FM5 TP(5)
	C719	0CN1020K518	1000P 50V K B TA26
	C720	0CN1020K518	1000P 50V K B TA26
	C721	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C722	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C723	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C724	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C725	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C726	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C727	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C728	0CE2256K618	2.2M SMS 50V M FL TP(5)
	C729	0CE1066J618	10M SMS 35V M FL TP(5)
	C730	0CE1076F618	100M SMS 16V M FM5 TP(5)
	C731	0CQ1031N409	0.01U 100V J POLY TP
	C732	0CQ1031N409	0.01U 100V J POLY TP
	C733	0CQ1031N409	0.01U 100V J POLY TP
	C734	0CQ1031N409	0.01U 100V J POLY TP
	C735	0CE2286J650	2200M SMS M FM7.5
	C736	0CE2286J650	2200M SMS M FM7.5
	C737	0CE1076F618	100M SMS 16V M FM5 TP(5)
	C738	0CE1076F618	100M SMS 16V M FM5 TP(5)
	C739	0CE1076F618	100M SMS 16V M FM5 TP(5)
	C740	0CN2230H948	0.022UF 25V Z F TA26
	C741	0CE1066J618	10M SMS 35V M FL TP(5)
	C743	0CE1076F618	100M SMS 16V M FM5 TP(5)
	C744	0CE2276D618	220M SMS 10V M FM5 TP(5)
	C747	0CE1066J618	10M SMS 35V M FL TP(5)
	C748	0CN2230H948	0.022UF 25V Z F TA26
	C751	0CN2230H948	0.022UF 25V Z F TA26
	C752	0CN1030F678	0.01M 16V M Y TA26

S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
	C778	0CK1040K945	0.1UF 50V Z F TS
	C779	0CX2700K408	27P 50V J SL TA26
	C781	0CE4766K618	47M SMS 50V M FM5 TP(5)
	C781	0CN1030F678	0.01M 16V M Y TA26
	C782	0CX3000K408	30P 50V J SL TA26
	C783	0CK1030K515	0.01M 50V K B TS
	C784	0CE1076K618	100UF SMS 50V M FL TP5
	C785	0CE1076J618	100UF SMS 35V M FM(5) TP(5)
	C786	0CE1076J618	100UF SMS 35V M FM(5) TP(5)
	C788	0CE1056K618	1.0M SMS 50V M FL TP(5)
	C788	0CN2230H948	0.022UF 25V Z F TA26
	C789	0CE1056K618	1.0M SMS 50V M FL TP(5)
	C789	0CK2230K945	0.022M 50V Z F TS
	C790	0CK1040K945	0.1UF 50V Z F TS
	C791	0CK2230K945	0.022M 50V Z F TS
	C791	0CN1030F678	0.01M 16V M Y TA26
	C792	0CK2230K945	0.022M 50V Z F TS
	C792	0CX3000K408	30P 50V J SL TA26
	C795	0CN2210K518	220P 50V K B TA26
	C796	0CN2010K518	220P 50V K B TA26
	C797	0CN2210K518	220P 50V K B TA26
	C798	0CN2010K518	220P 50V K B TA26
	C801	0CE4766F618	47M SMS 16V M FL TP(5)
	C802	0CN4720F668	4700P 16V M X TA26
	C803	0CX6800K408	68P 50V J SL TA26
	C804	0CX4R70K518	4.7P 50V K NP0 TA26
	C805	0CQ1041N409	0.1U 100V J POLY TP
	C806	0CN5610K518	560P 50V K B TA26
	C807	0CQ1041N409	0.1U 100V J POLY TP
	C808	0CN2220F668	2200P 16V M X TA26
	C809	0CN4720F668	4700P 16V M X TA26
	C810	0CN6820F668	6800P 16V M X TA26
	C811	0CE3346K618	0.33M SMS 50V M FL TP(5)
	C812	0CE1066J618	10M SMS 35V M FL TP(5)
	C813	0CE4746K618	0.47M SMS 50V M FL TP(5)
	C814	0CX4700K408	47P 50V J SL TA26
	C815	0CE4746K618	0.47M SMS 50V M FL TP(5)
	C816	0CN1030F678	0.01M 16V M Y TA26
	C817	0CQ3331N409	0.033U 100V J POLY TP
	C818	0CE4766F618	47M SMS 16V M FL TP(5)
	C819	0CE4766F618	47M SMS 16V M FL TP(5)
	C820	0CQ1031N409	0.01U 100V J POLY TP
	C821	0CQ1031N409	0.01U 100V J POLY TP
	C822	0CQ1031N409	0.01U 100V J POLY TP
	C823	0CQ1041N409	0.1U 100V J POLY TP
	C824	0CQ1041N409	0.1U 100V J POLY TP
	C825	0CQ1041N409	0.1U 100V J POLY TP
	C826	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C827	0CE3366F618	33M SMS 16V M FL TP(5)
	C828	0CQ3331N409	0.033U 100V J POLY TP
	C829	0CE4746K618	0.47M SMS 50V M FL TP(5)
	C830	0CN1030F678	0.01M 16V M Y TA26
	C831	0CN1020K518	1000P 50V K B TA26
	C832	0CE4766F618	47M SMS 16V M FL TP(5)
	C833	0CX8R20K518	8.2P 50V K NP0 TA26
	C835	0CE4776D618	470M SMS 10V M FL TP(5)
	C836	0CX1200K418	12P 50V J NP0 TA26
	C840	0CN1040K948	0.1UF 50V Z F TA26
	C841	0CN1040K948	0.1UF 50V Z F TA26
	C842	0CN1040K948	0.1UF 50V Z F TA26
	C843	0CE1076F618	100M SMS 16V M FM5 TP(5)
	C844	0CE4776D618	470M SMS 10V M FL TP(5)

S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
	C845	0CN1040K948	0.1UF 50V Z F TA26
	C850	0CN1030F678	0.01M 16V M Y TA26
	C851	0CE2276F618	220M SMS 16V M FM5 TP(5)
	C852	0CN1020K518	1000P 50V K B TA26
	C853	0CN1030F678	0.01M 16V M Y TA26
	C854	0CN1040K948	0.1UF 50V Z F TA26
	C855	0CN1030F678	0.01M 16V M Y TA26
	C856	0CE1076F618	100M SMS 16V M FM5 TP(5)
	C857	0CE4776D618	470M SMS 10V M FL TP(5)
	C858	0CX3300K408	33P 50V J SL TA26
	C859	0CX3300K408	33P 50V J SL TA26
	C860	0CQ4731N409	0.047U 100V J POLY TP
	C861	0CQ1521N409	0.0015U 100V J POLY TP
	C862	0CE1076F618	100M SMS 16V M FM5 TP(5)
	C863	0CE4756K618	4.7M SMS 50V M FL TP(5)
	C864	0CN1020K518	1000P 50V K B TA26
	C865	0CE1076F618	100M SMS 16V M FM5 TP(5)
	C866	0CE4766F618	47M SMS 16V M FL TP(5)
	C867	0CN3310K518	330P 50V K B TA26
	C868	0CN1520F568	1500P 16V K X TA26
	C869	0CE4766F618	47M SMS 16V M FL TP(5)
	C870	0CN1220F668	1200P 16V M X TA26
	C871	0CE1056K618	1.0M SMS 50V M FL TP(5)
	C872	0CC0500K075	5P 50V C N750 TS
	C873	0CN1520F568	1500P 16V K X TA26
	C874	0CN3310K518	330P 50V K B TA26
	C875	0CN1220F668	1200P 16V M X TA26
	C876	0CE1056K618	1.0M SMS 50V M FL TP(5)
	C877	0CC0500K075	5P 50V C N750 TS
	C878	0CE1066J618	10M SMS 35V M FL TP(5)
	C879	0CE1066J618	10M SMS 35V M FL TP(5)
	C892	0CN1030F678	0.01M 16V M Y TA26

RESISTORS

	R101	0RD3300F608	330 1/6W 5 TA26
	R102	0RD6800F608	680 1/6W 5 TA26
	R103	0RD3901F608	3.9K 1/6W 5 TA26
	R104	0RD0102F608	10 1/6W 5 TA26
	R105	0RD3300F608	330 1/6W 5 TA26
	R106	0RD1000G608	100 1/4W 5 TA26
	R107	0RD4702F608	47K 1/6W 5 TA26
	R108	0RD3301F608	3.3K 1/6W 5 TA26
	R109	0RD1000G608	100 1/4W 5 TA26
	R110	0RD1003F608	100K 1/6W 5 TA26
	R112	0RD1002G608	10K 1/4W 5 TA26
	R113	0RD3301F608	3.3K 1/6W 5 TA26
	R115	0RD1003F608	100K 1/6W 5 TA26
	R116	0RD1003F608	100K 1/6W 5 TA26
	R117	0RD1003F608	100K 1/6W 5 TA26
	R118	0RD1502F608	15K 1/6W 5 TA26
	R119	0RD2202F608	22K 1/6W 5 TA26
	R120	0RD6801G608	6.8K 1/4W 5 TA26
	R121	0RD1002F608	10K 1/6W 5 TA26
	R122	0RD1002F608	10K 1/6W 5 TA26
	R123	0RD2700F608	270 1/6W 5 TA26
	R124	0RD3301F608	3.3K 1/6W 5 TA26
	R125	0RD3301F608	3.3K 1/6W 5 TA26
	R126	0RD3301F608	3.3K 1/6W 5 TA26
	R128	0RD4701G608	4.7K 1/4W 5 TA26
	R129	0RD1503F608	150K 1/6W 5 TA26
	R130	0RD2201F608	2.2K 1/6W 5 TA26

S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
	R131	0RD2201F608	2.2K 1/6W 5 TA26
	R132	0RD2201F608	2.2K 1/6W 5 TA26
	R133	0RD4702F608	47K 1/6W 5 TA26
	R134	0RD1002F608	10K 1/6W 5 TA26
	R135	0RD1002F608	10K 1/6W 5 TA26
	R136	0RD1002F608	10K 1/6W 5 TA26
	R137	0RD1002F608	10K 1/6W 5 TA26
	R138	0RD3901F608	3.9K 1/6W 5 TA26
	R139	0RD3901F608	3.9K 1/6W 5 TA26
	R140	0RD1501F608	1.5K 1/6W 5 TA26
	R141	0RD1501F608	1.5K 1/6W 5 TA26
	R142	0RD1200F608	120 1/6W 5 TA26
	R149	0RD1002F608	10K 1/6W 5 TA26
	R150	0RD1001F608	1.0K 1/6W 5 TA26
	R163	0RD5601F608	5.6K 1/6W 5 TA26
	R164	0RD5601F608	5.6K 1/6W 5 TA26
	R165	0RD1002F608	10K 1/6W 5 TA26
	R191	0RD1003F608	100K 1/6W 5 TA26
	R203	0RD1003F608	100K 1/6W 5 TA26
	R204	0RD1003F608	100K 1/6W 5 TA26
	R205	0RD1500F608	150 1/6W 5 TA26
	R206	0RD1102F608	11K 1/6W 5% TA26
	R207	0RD1502F608	15K 1/6W 5 TA26
	R208	0RD3301F608	3.3K 1/6W 5 TA26
	R209	0RD2201F608	2.2K 1/6W 5 TA26
	R210	0RD1003F608	100K 1/6W 5 TA26
	R211	0RD1502F608	15K 1/6W 5 TA26
	R212	0RD1003F608	100K 1/6W 5 TA26
	R213	0RD1502F608	15K 1/6W 5 TA26
	R214	0RD1003F608	100K 1/6W 5 TA26
	R215	0RD1502F608	15K 1/6W 5 TA26
	R216	0RD1501F608	1.5K 1/6W 5 TA26
	R217	0RD6800F608	680 1/6W 5 TA26
	R221	0RD8200F608	820 1/6W 5 TA26
	R222	0RD3301G608	3.3K 1/4W 5 TA26
	R223	0RD1002F608	10K 1/6W 5 TA26
	R224	0RD1002F608	10K 1/6W 5 TA26
	R225	0RD6801F608	6.8K 1/6W 5 TA26
	R226	0RD1000G608	100 1/4W 5 TA26
	R228	0RD2202F608	22K 1/6W 5 TA26
	R229	0RD1802F608	18K 1/6W 5 TA26
	R230	0RD2202G608	22K 1/4W 5 TA26
	R231	0RD2202F608	22K 1/6W 5 TA26
	R232	0RD2202F608	22K 1/6W 5 TA26
	R233	0RD5601F608	5.6K 1/6W 5 TA26
	R234	0RD4701G608	4.7K 1/4W 5 TA26
	R235	0RD1002F608	10K 1/6W 5 TA26
	R236	0RD6800F608	680 1/6W 5 TA26
	R238	0RD5602F608	56K 1/6W 5 TA26
	R246	0RD6802F608	68K 1/6W 5 TA26
	R247	0RD3302F608	33K 1/6W 5 TA26
	R248	0RD1001F608	1.0K 1/6W 5 TA26
	R249	0RD1001F608	1.0K 1/6W 5 TA26
	R250	0RD2402F608	24K 1/6W 5 TA26
	R251	0RD3900G608	390 1/4W 5 TA26
	R253	672-001A	TIN WIRE
	R255	0RD3301F608	3.3K 1/6W 5 TA26
	R256	0RD1802F608	18K 1/6W 5 TA26
	R257	0RD1501F608	1.5K 1/6W 5 TA26
	R258	0RD1501F608	1.5K 1/6W 5 TA26
	R259	0RD1201F608	1.2K 1/6W 5 TA26
	R260	0RD1002F608	10K 1/6W 5 TA26

S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
	R261	0RD4701F608	4.7K 1/6W 5 TA26
	R262	0RD2201F608	2.2K 1/6W 5 TA26
	R263	0RD1502F608	15K 1/6W 5 TA26
	R264	0RD1002F608	10K 1/6W 5 TA26
	R265	0RD3901F608	3.9K 1/6W 5 TA26
	R266	0RD4701F608	4.7K 1/6W 5 TA26
	R267	0RD1002F608	10K 1/6W 5 TA26
	R268	0RD1502F608	15K 1/6W 5 TA26
	R269	0RD1002F608	10K 1/6W 5 TA26
	R272	0RD0102F608	10 1/6W 5 TA26
	R275	0RD4700F608	470 1/6W 5 TA26
	R276	0RD1002F608	10K 1/6W 5 TA26
	R277	0RD1002F608	10K 1/6W 5 TA26
	R278	0RD1501F608	1.5K 1/6W 5 TA26
	R279	0RD1002F608	10K 1/6W 5 TA26
	R280	0RD1802F608	18K 1/6W 5 TA26
	R281	0RD1002G608	10K 1/4W 5 TA26
	R282	0RD4702F608	47K 1/6W 5 TA26
	R283	0RD5602F608	56K 1/6W 5 TA26
	R284	0RD8201F608	8.2K 1/6W 5 TA26
	R285	0RD3902F608	39K 1/6W 5 TA26
	R286	0RD8201F608	8.2K 1/6W 5 TA26
	R287	0RD1802F608	18K 1/6W 5 TA26
	R288	0RD8201F608	8.2K 1/6W 5 TA26
	R289	0RD8201F608	8.2K 1/6W 5 TA26
	R291	0RD2202F608	22K 1/6W 5 TA26
	R292	0RD2701F608	2.7K 1/6W 5 TA26
	R293	0RD2202F608	22K 1/6W 5 TA26
	R294	0RD2701F608	2.7K 1/6W 5 TA26
	R295	0RD1002F608	10K 1/6W 5 TA26
	R296	0RD4701F608	4.7K 1/6W 5 TA26
	R297	0RD6801F608	6.8K 1/6W 5 TA26
	R298	0RD1002F608	10K 1/6W 5 TA26
	R299	0RD1003F608	100K 1/6W 5 TA26
	R303	0RD1003F608	100K 1/6W 5 TA26
	R304	0RD1003F608	100K 1/6W 5 TA26
	R305	0RD1500F608	150 1/6W 5 TA26
	R306	0RD1102F608	11K 1/6W 5% TA26
	R307	0RD1502F608	15K 1/6W 5 TA26
	R308	0RD3301F608	3.3K 1/6W 5 TA26
	R309	0RD2201F608	2.2K 1/6W 5 TA26
	R321	0RD8200F608	820 1/6W 5 TA26
	R323	0RD1002F608	10K 1/6W 5 TA26
	R324	0RD1002F608	10K 1/6W 5 TA26
	R325	0RD6801F608	6.8K 1/6W 5 TA26
	R332	0RD2202F608	22K 1/6W 5 TA26
	R333	0RD5601F608	5.6K 1/6W 5 TA26
	R334	0RD4701F608	4.7K 1/6W 5 TA26
	R335	0RD1002G608	10K 1/4W 5 TA26
	R336	0RD6800F608	680 1/6W 5 TA26
	R338	0RD5602F608	56K 1/6W 5 TA26
	R346	0RD6802F608	68K 1/6W 5 TA26
	R364	0RD1002F608	10K 1/6W 5 TA26
	R367	0RD1002F608	10K 1/6W 5 TA26
	R391	0RD1000F608	100 1/6W 5 TA26
	R392	0RD1000F608	100 1/6W 5 TA26
	R401	0RD1002G608	10K 1/4W 5 TA26
	R402	0RD1001G608	1.0K 1/4W 5 TA26
	R403	0RD1501G608	1.5K 1/4W 5 TA26
	R404	0RD1801G608	1.8K 1/4W 5 TA26
	R405	0RD1002G608	10K 1/4W 5 TA26
	R406	0RD1001F608	1.0K 1/6W 5 TA26

S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
	R407	ORD1501G608	1.5K 1/4W 5 TA26
	R408	ORD1801G608	1.8K 1/4W 5 TA26
	R409	ORD2201G608	2.2K 1/4W 5 TA26
	R410	ORD2701G608	2.7K 1/4W 5 TA26
	R411	ORD3901F608	3.9K 1/6W 5 TA26
	R412	ORD5601F608	5.6K 1/6W 5 TA26
	R413	ORD1002G608	10K 1/4W 5 TA26
	R414	ORD1802F608	18K 1/6W 5 TA26
	R415	ORD4702F608	47K 1/6W 5 TA26
	R416	ORD1002G608	10K 1/4W 5 TA26
	R417	ORD1001G608	1.0K 1/4W 5 TA26
	R418	ORD1501G608	1.5K 1/4W 5 TA26
	R419	ORD1801G608	1.8K 1/4W 5 TA26
	R420	ORD2201G608	2.2K 1/4W 5 TA26
	R421	ORD2701G608	2.7K 1/4W 5 TA26
	R422	ORD3901G608	3.9K 1/4W 5 TA26
	R423	ORD5601G608	5.6K 1/4W 5 TA26
	R424	ORD1002G608	10K 1/4W 5 TA26
	R425	ORD1802G608	18K 1/4W 5 TA26
	R426	ORD2201G608	2.2K 1/4W 5 TA26
	R427	ORD1001F608	1.0K 1/6W 5 TA26
	R433	ORD1001F608	1.0K 1/6W 5 TA26
	R434	ORD1001F608	1.0K 1/6W 5 TA26
	R435	ORD1002G608	10K 1/4W 5 TA26
	R436	ORD8200G608	820 1/4W 5 TA26
	R437	ORD8200G608	820 1/4W 5 TA26
	R438	ORD1001F608	1.0K 1/6W 5 TA26
	R439	ORD4701G608	4.7K 1/4W 5 TA26
	R440	ORD1001F608	1.0K 1/6W 5 TA26
	R441	ORD4702F608	47K 1/6W 5 TA26
	R442	ORD4702F608	47K 1/6W 5 TA26
	R444	ORD1002F608	10K 1/6W 5 TA26
	R445	ORD1001F608	1.0K 1/6W 5 TA26
	R446	ORD1002G608	10K 1/4W 5 TA26
	R447	ORD1002F608	10K 1/6W 5 TA26
	R449	ORD1002F608	10K 1/6W 5 TA26
	R450	ORD1002F608	10K 1/6W 5 TA26
	R451	ORD1002F608	10K 1/6W 5 TA26
	R452	ORD1002G608	10K 1/4W 5 TA26
	R453	ORD1002F608	10K 1/6W 5 TA26
	R454	ORD4702F608	47K 1/6W 5 TA26
	R455	ORD4702F608	47K 1/6W 5 TA26
	R456	ORD1001G608	1.0K 1/4W 5 TA26
	R465	ORD1001G608	1.0K 1/4W 5 TA26
	R466	ORD1001G608	1.0K 1/4W 5 TA26
	R467	ORD1001G608	1.0K 1/4W 5 TA26
	R468	ORD1001G608	1.0K 1/4W 5 TA26
	R469	ORD1001F608	1.0K 1/6W 5 TA26
	R470	ORD1001G608	1.0K 1/4W 5 TA26
	R471	ORD1001G608	1.0K 1/4W 5 TA26
	R472	ORD1001F608	1.0K 1/6W 5 TA26
	R473	ORD1001F608	1.0K 1/6W 5 TA26
	R474	ORD1001F608	1.0K 1/6W 5 TA26
	R475	ORD1001G608	1.0K 1/4W 5 TA26
	R476	ORD1001G608	1.0K 1/4W 5 TA26
	R477	ORD1001G608	1.0K 1/4W 5 TA26
	R478	ORD1001G608	1.0K 1/4W 5 TA26
	R479	ORD1001G608	1.0K 1/4W 5 TA26
	R480	ORD1001G608	1.0K 1/4W 5 TA26
	R481	ORD1001G608	1.0K 1/4W 5 TA26
	R482	ORD1001G608	1.0K 1/4W 5 TA26
	R483	ORD1001G608	1.0K 1/4W 5 TA26

S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
	R484	ORD1001F608	1.0K 1/6W 5 TA26
	R485	ORD1001F608	1.0K 1/6W 5 TA26
	R486	ORD1001F608	1.0K 1/6W 5 TA26
	R487	ORD1001F608	1.0K 1/6W 5 TA26
	R488	ORD1001F608	1.0K 1/6W 5 TA26
	R489	ORD1001F608	1.0K 1/6W 5 TA26
	R490	ORD1001F608	1.0K 1/6W 5 TA26
	R493	ORD1001F608	1.0K 1/6W 5 TA26
	R495	ORD1001F608	1.0K 1/6W 5 TA26
	R496	ORD1001F608	1.0K 1/6W 5 TA26
	R497	ORD1001F608	1.0K 1/6W 5 TA26
	R498	ORD1001F608	1.0K 1/6W 5 TA26
	R499	ORD1001F608	1.0K 1/6W 5 TA26
	R701	ORD8200G608	820 1/4W 5 TA26
	R702	ORD0681F608	6.8 1/6W 5 TA26
	R703	ORD0681F608	6.8 1/6W 5 TA26
	R705	ORD4702F608	47K 1/6W 5 TA26
	R706	ORD5600F608	560 1/6W 5 TA26
	R707	ORD5602F608	56K 1/6W 5 TA26
	R708	ORD5601F608	5.6K 1/6W 5 TA26
	R709	ORD1001F608	1.0K 1/6W 5 TA26
	R710	ORD1001F608	1.0K 1/6W 5 TA26
	R711	ORD8200G608	820 1/4W 5 TA26
	R715	ORD5601F608	5.6K 1/6W 5 TA26
	R716	ORD5601F608	5.6K 1/6W 5 TA26
	R717	ORD1801F608	1.8K 1/6W 5 TA26
	R718	ORD1800G608	180 1/4W 5 TA26
	R722	ORD1002F608	10K 1/6W 5 TA26
	R723	ORD6801F608	6.8K 1/6W 5 TA26
	R724	ORD3302F608	33K 1/6W 5 TA26
	R725	ORD1202F608	12K 1/6W 5 TA26
	R726	ORD3302F608	33K 1/6W 5 TA26
	R731	ORD3900F608	390 1/6W 5 TA26
	R732	ORD3900F608	390 1/6W 5 TA26
	R733	ORD1801F608	1.8K 1/6W 5 TA26
	R734	ORS0102K665	10 2W 5 SF20
	R735	672-001A	TIN WIRE
	R736	672-001A	TIN WIRE
	R741	ORD1002F608	10K 1/6W 5 TA26
	R742	ORD1002G608	10K 1/4W 5 TA26
	R743	ORD5601F608	5.6K 1/6W 5 TA26
	R751	ORD8200G608	820 1/4W 5 TA26
	R752	ORD0681F608	6.8 1/6W 5 TA26
	R753	ORD0681F608	6.8 1/6W 5 TA26
	R755	ORD4702F608	47K 1/6W 5 TA26
	R756	ORD5600F608	560 1/6W 5 TA26
	R757	ORD5602F608	56K 1/6W 5 TA26
	R758	ORD5601F608	5.6K 1/6W 5 TA26
	R759	ORD1001F608	1.0K 1/6W 5 TA26
	R760	ORD1001F608	1.0K 1/6W 5 TA26
	R761	ORD8200G608	820 1/4W 5 TA26
	R765	ORD2702F608	27K 1/6W 5 TA26
	R766	ORD2702F608	27K 1/6W 5 TA26
	R781	ORD2201G608	2.2K 1/4W 5 TA26
	R782	ORD5600G608	560 1/4W 5 TA26
	R783	ORD1002F608	10K 1/6W 5 TA26
	R784	ORD2201G608	2.2K 1/4W 5 TA26
	R786	ORD0471G608	4.7 1/4W 5 TA26
	R787	ORD0471G608	4.7 1/4W 5 TA26
	R795	ORD3302F608	33K 1/6W 5 TA26
	R796	ORD4702F608	47K 1/6W 5 TA26
	R797	ORD3302F608	33K 1/6W 5 TA26

S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
	R798	ORD4702F608	47K 1/6W 5 TA26
	R801	ORD1001F608	1.0K 1/6W 5 TA26
	R802	ORD1502F608	15K 1/6W 5 TA26
	R803	ORD8201F608	8.2K 1/6W 5 TA26
	R804	ORD1001F608	1.0K 1/6W 5 TA26
	R805	ORD1002F608	10K 1/6W 5 TA26
	R806	ORD1001F608	1.0K 1/6W 5 TA26
	R807	ORD2202F608	22K 1/6W 5 TA26
	R808	ORD6801F608	6.8K 1/6W 5 TA26
	R809	ORD1503F608	150K 1/6W 5 TA26
	R810	ORD1203F608	120K 1/6W 5 TA26
	R811	ORD4702F608	47K 1/6W 5 TA26
	R812	ORD1003F608	100K 1/6W 5 TA26
	R813	ORD4702F608	47K 1/6W 5 TA26
	R814	ORD1803F608	180K 1/6W 5 TA26
	R815	ORD4702F608	47K 1/6W 5 TA26
	R816	ORD8202F608	82K 1/6W 5 TA26
	R817	ORD1002F608	10K 1/6W 5 TA26
	R818	ORD1003F608	100K 1/6W 5 TA26
	R819	ORD1002F608	10K 1/6W 5 TA26
	R820	ORD1001F608	1.0K 1/6W 5 TA26
	R821	ORD4703F608	470K 1/6W 5 TA26
	R822	ORD1202F608	12K 1/6W 5 TA26
	R823	ORD1803F608	180K 1/6W 5 TA26
	R824	ORD8201F608	8.2K 1/6W 5 TA26
	R825	ORD1004F608	1.0M 1/6W 5 TA26
	R826	ORD1002F608	10K 1/6W 5 TA26
	R827	ORD1002F608	10K 1/6W 5 TA26
	R828	ORD1202F608	12K 1/6W 5 TA26
	R829	ORD1202F608	12K 1/6W 5 TA26
	R830	ORD4701F608	4.7K 1/6W 5 TA26
	R831	ORD0822F608	82 1/6W 5 TA26
	R832	ORD0222F608	22 1/6W 5 TA26
	R833	ORD0272F608	27 1/6W 5 TA26
	R834	ORD1502F608	15K 1/6W 5 TA26
	R836	ORD1002F608	10K 1/6W 5 TA26
	R838	ORD0272F608	27 1/6W 5 TA26
	R840	ORD5600F608	560 1/6W 5 TA26
	R841	ORD1202F608	12K 1/6W 5 TA26
	R842	ORD8201F608	8.2K 1/6W 5 TA26
	R843	ORD1802F608	18K 1/6W 5 TA26
	R844	ORD3902F608	39K 1/6W 5 TA26
	R845	ORD8201F608	8.2K 1/6W 5 TA26
	R846	ORD1000F608	100 1/6W 5 TA26
	R847	ORD4702F608	47K 1/6W 5 TA26
	R848	ORD1802F608	18K 1/6W 5 TA26
	R849	ORD8201F608	8.2K 1/6W 5 TA26
	R850	ORD8201F608	8.2K 1/6W 5 TA26
	R851	ORD8201F608	8.2K 1/6W 5 TA26
	R852	ORD8201F608	8.2K 1/6W 5 TA26
	R853	ORD3902F608	39K 1/6W 5 TA26
	R855	ORD3301F608	3.3K 1/6W 5 TA26
	R856	ORD2702F608	27K 1/6W 5 TA26
	R857	ORD3301F608	3.3K 1/6W 5 TA26
	R859	ORD0272F608	27 1/6W 5 TA26
	R861	ORD1002F608	10K 1/6W 5 TA26
	R862	ORD1002F608	10K 1/6W 5 TA26
	R863	ORD1502F608	15K 1/6W 5 TA26
	R864	ORD8201F608	8.2K 1/6W 5 TA26
	R865	ORD1001F608	1.0K 1/6W 5 TA26
	R866	ORD5601F608	5.6K 1/6W 5 TA26
	R867	ORD5601F608	5.6K 1/6W 5 TA26

S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
	R868	ORD5601F608	5.6K 1/6W 5 TA26
	R869	ORD1202F608	12K 1/6W 5 TA26
	R870	ORD1004F608	1.0M 1/6W 5 TA26
	R871	ORD2702F608	27K 1/6W 5 TA26
	R872	ORD2702F608	27K 1/6W 5 TA26
	R873	ORD5601F608	5.6K 1/6W 5 TA26
	R874	ORD5601F608	5.6K 1/6W 5 TA26
	R875	ORD5601F608	5.6K 1/6W 5 TA26
	R876	ORD2702F608	27K 1/6W 5 TA26
	R877	ORD1004F608	1.0M 1/6W 5 TA26
	R878	ORD1202F608	12K 1/6W 5 TA26
	R879	ORD2702F608	27K 1/6W 5 TA26
	R880	ORD4700F608	470 1/6W 5 TA26
	R881	ORD4700F608	470 1/6W 5 TA26
	R882	ORD2700F608	270 1/6W 5 TA26
	R883	ORD1002F608	10K 1/6W 5 TA26
	R884	ORD1001F608	1.0K 1/6W 5 TA26
	R886	ORD1800F608	180 1/6W 5 TA26
	R887	ORD1002F608	10K 1/6W 5 TA26
	R891	ORD4700F608	470 1/6W 5 TA26
	R892	ORD0472F608	47 1/6W 5 TA26
	R893	ORD1001F608	1.0K 1/6W 5 TA26
	R894	ORD1001F608	1.0K 1/6W 5 TA26
	R895	ORD1001F608	1.0K 1/6W 5 TA26
	R898	ORD1001F608	1.0K 1/6W 5 TA26
	R901	ORD2201F608	2.2K 1/6W 5 TA26
	R902	ORD2701F608	2.7K 1/6W 5 TA26
	R903	ORD3901F608	3.9K 1/6W 5 TA26
	R904	ORD5601F608	5.6K 1/6W 5 TA26
	R905	ORD1002F608	10K 1/6W 5 TA26
	R906	ORD1802F608	18K 1/6W 5 TA26
	R907	ORD4702F608	47K 1/6W 5 TA26
	R908	ORD8200G608	820 1/4W 5 TA26
	R909	ORD8200G608	820 1/4W 5 TA26
	R980	ORD1001F608	1.0K 1/6W 5 TA26
	R981	ORD1001F608	1.0K 1/6W 5 TA26
	R982	ORD1001F608	1.0K 1/6W 5 TA26
	R983	ORD1001F608	1.0K 1/6W 5 TA26
	R985	ORD1001F608	1.0K 1/6W 5 TA26
	R986	ORD1001F608	1.0K 1/6W 5 TA26
	R987	ORD1001F608	1.0K 1/6W 5 TA26
	R989	ORD1001F608	1.0K 1/6W 5 TA26
	R990	ORD5601F608	5.6K 1/6W 5 TA26

COILS

	FB701	631T603F	4EAD CORE,BF45TS-2,6X6X0.8 TDK
	FB702	631T603F	4EAD CORE,BF45TS-2,6X6X0.8 TDK
	FB704	631T603F	4EAD CORE,BF45TS-2,6X6X0.8 TDK
	FB705	631T603F	4EAD CORE,BF45TS-2,6X6X0.8 TDK
	FB765	631T603F	4EAD CORE,BF45TS-2,6X6X0.8 TDK
	FB766	631T603F	4EAD CORE,BF45TS-2,6X6X0.8 TDK
	FB777	631T603F	4EAD CORE,BF45TS-2,6X6X0.8 TDK
	FB781	631T603F	4EAD CORE,BF45TS-2,6X6X0.8 TDK
	L101	634N048C	OSC MW COIL (=038C)
	L102	634N048L	OSC LW COIL (=038L)
	L103	631N606D	RF LW COIL(OA-810168),COIL'S
	L104	631N610C	RF MW 10(OF10B-93006), TOMEI
	L105	644-040A	PCFMA-157, MW IF TOKO
	L106	637N009A	33MH C/CORE (=N008A)
	L107	637-601D	INDUCTOR, F 20.8MH (S)
	L108	638N202A	MPX FILTER 19K (=102A)

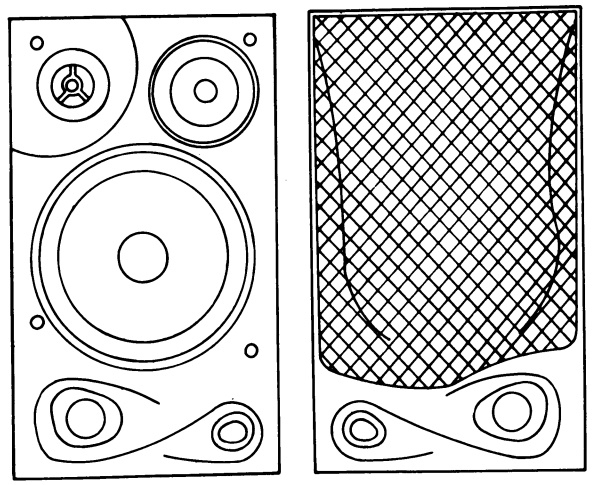
S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
	L109	638N202A	MPX FILTER 19K (=102A)
	L201	637N009A	33MH C/CORE (=N008A)
	L204	637N009A	33MH C/CORE (=N008A)
	L205	634N620C	OSC TAPE 10 4.7MH (=610C)
	L301	637N009A	33MH C/CORE (=N008A)
	L304	637N009A	33MH C/CORE (=N008A)
CRYSTALS			
	X145	617T602D	7.2MHZ
	X401	616-020P	CSA6.00MGU MURATA
	X402	617-602F	32.768KHZ KYOCERA (S)
	X801	617T602E	16.9344MHZ KONY
DISPLAY			
	DSP401	659-250Y	11ST-02GK,DIGITRON,FUTABA
FILTERS			
	CF101	616-010J	SFE10.7MJA10-A,MURATA
	CF102	616-010J	SFE10.7MJA10-A,MURATA
	CF103	616-010J	SFE10.7MJA10-A,MURATA
	CF104	616-021L	CDA10.7MG46-A, MURATA
	CF105	616-020L	RESO NATOR,CSB456F15
FUSES			
⚠	F703	0FT5001B513	5A 250V 5.2X20 CY/GL SEMKO
⚠	F704	0FT5001B513	5A 250V 5.2X20 CY/GL SEMKO
JACKS			
	JK101	561-100H	TERMIANL ANT SP-031
	JK701	561-100D	TERMIANL SPEAKER SP-026B
	JK702	572-559A	HTJ-064-05B KUNMING 9PIN METAL
	JK703	576-002I	JACK,BLOCK S-436*-2P(RD/WH)
POWER TRANS			
⚠		6170S-027ZS	115/230V 5/60HZ 66X45 PIN
SWITCHES			
	SW401	558T908A	TACT SKHV10908A H=4.3 TP
	SW402	558T908A	TACT SKHV10908A H=4.3 TP
	SW403	558T908A	TACT SKHV10908A H=4.3 TP
	SW404	558T908A	TACT SKHV10908A H=4.3 TP
	SW405	558T908A	TACT SKHV10908A H=4.3 TP
	SW406	558T908A	TACT SKHV10908A H=4.3 TP
	SW407	558T908A	TACT SKHV10908A H=4.3 TP
	SW408	558T908A	TACT SKHV10908A H=4.3 TP
	SW409	558T908A	TACT SKHV10908A H=4.3 TP
	SW410	558T908A	TACT SKHV10908A H=4.3 TP
	SW411	558T908A	TACT SKHV10908A H=4.3 TP
	SW412	558T908A	TACT SKHV10908A H=4.3 TP
	SW413	558T908A	TACT SKHV10908A H=4.3 TP
	SW414	558T908A	TACT SKHV10908A H=4.3 TP
	SW415	558T908A	TACT SKHV10908A H=4.3 TP
	SW416	558T908A	TACT SKHV10908A H=4.3 TP
	SW417	558T908A	TACT SKHV10908A H=4.3 TP
	SW418	558T908A	TACT SKHV10908A H=4.3 TP

S	LOCA.NO.	PART NO. (GS)	SPECIFICATION
	SW419	558T908A	TACT SKHV10908A H=4.3 TP
	SW420	558T908A	TACT SKHV10908A H=4.3 TP
	SW421	558T908A	TACT SKHV10908A H=4.3 TP
	SW422	558T908A	TACT SKHV10908A H=4.3 TP
	SW423	558T908A	TACT SKHV10908A H=4.3 TP
	SW424	558T908A	TACT SKHV10908A H=4.3 TP
	SW425	558T908A	TACT SKHV10908A H=4.3 TP
	SW426	558T908A	TACT SKHV10908A H=4.3 TP
	SW901	558T908A	TACT SKHV10908A H=4.3 TP
	SW902	558T908A	TACT SKHV10908A H=4.3 TP
	SW903	558T908A	TACT SKHV10908A H=4.3 TP
	SW904	558T908A	TACT SKHV10908A H=4.3 TP
	SW905	558T908A	TACT SKHV10908A H=4.3 TP
	SW906	558T908A	TACT SKHV10908A H=4.3 TP
	SW907	558T908A	TACT SKHV10908A H=4.3 TP
TRIMMERS			
	TC101	623-001E	TRIMMER,C CVN610 DONG-KUK (S)
	TC102	623-001F	TRIMMER, C CVN620 DONG-KUK (S)
	TC103	623-001F	TRIMMER, C CVN620 DONG-KUK (S)
	TC104	623-001E	TRIMMER,C CVN610 DONG-KUK (S)
TUNER PACK			
	TUN101	521-026Y	FE340-A01 MITSUMI
VARIABLE RESISTORS			
	VR201	0RV1223D230	22K 6 ST P3 L2.5 5
	VR202	0RV1223D230	22K 6 ST P3 L2.5 5
	VR203	0RV1223D230	22K 6 ST P3 L2.5 5
	VR204	0RV1154D230	150K 6 ST P3 L2.5 5
	VR205	0RV1472D230	4.7K 6 ST P3 L2.5 5
	VR301	0RV1223D230	22K 6 ST P3 L2.5 5
	VR302	0RV1223D230	22K 6 ST P3 L2.5 5
	VR303	0RV1223D230	22K 6 ST P3 L2.5 5
	VR304	0RV1154D230	150K 6 ST P3 L2.5 5
	VR401	611-911A	EVQ VEM F03 24B , MATSUSHITA
	VR801	0RV1223D550	22K 6 AG P3 L2.5 2.5
	VR802	0RV1223D550	22K 6 AG P3 L2.5 2.5

LOCA.NO.	PART NO. (GS)	DESCRIPTION	SPECIFICATION	REMARK
MISCELLANEOUS PARTS				
	3874S-5393B	MANUAL, OPERATION	FFH-393L ENGL/FREN	
	3890S-C062B	BOX	FFH-393L BG2(LGEFS)	
	632-218E	COIL ANTENNA	COIL ANT LOOT MW(21D) W/O LUG	
	6710S-C002A	REMOTE CONTROLLER	F-393(EXPORT)KYOUNG-IN	
	681N004F	CORD POWER	HKE-1,H03VVH2-F,1.75M,HITACHI	
	6871S-26FAA	PWB ASSY	FFH-292 CD MAIN	
	6871S-26HAB	PWB ASSY	FFH-393L(BG2)FRONT/CD/POWER	
	6871S-26JAB	PWB ASSY	FFH-393L(BG2)AMP/TUNER/DECK	
	6871SA26HAB	PWB ASSY	FFH-393L(BG2)FRONT	
	6871SB26HAA	PWB ASSY	CD KEY OF FFH-393	
	6871SB26JAB	PWB ASSY	FFH-393L(BG2)TUNER	
	6871SC26HAA	PWB ASSY	POWER OF FFH-393	
	6871SC26JAA	PWB ASSY	DECK OF FFH-393	
	6871SD26JAA	PWB ASSY	AUX OF FFH-393	

SPEAKER SYSTEM

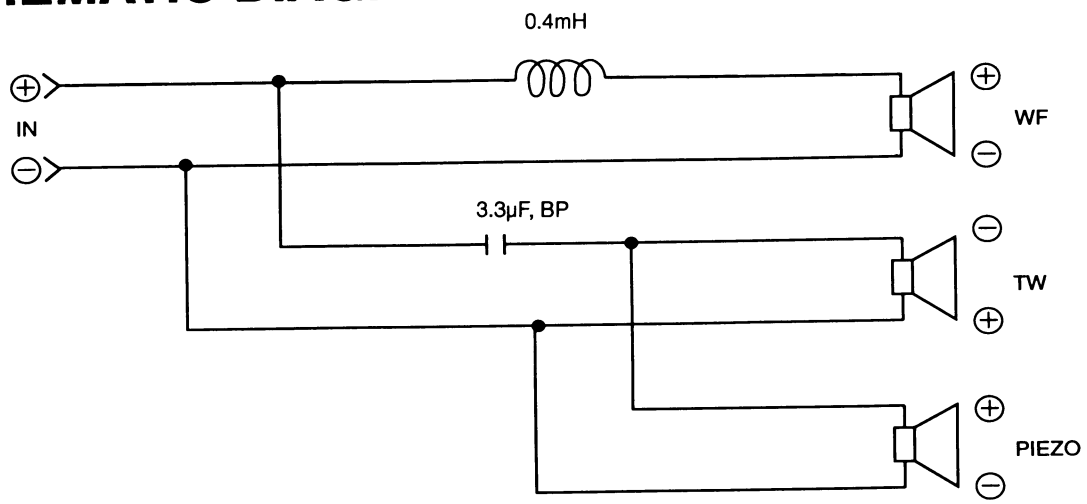
MODEL : FE-393E



SPECIFICATIONS

- TYPE : BASS REFLEX 3 WAY 3 SPEAKER SYSTEM
- SPEAKER UNIT : WOOFER 130mm ($5^{1/4}$″), TWEETER 60mm ($2^{1/3}$″) PIEZO 20mm
- IMPEDANCE : 6Ω
- FREQUENCY RANGE : 70Hz~20,000Hz
- S.P.L. : 86dB/W(1m)
- RATED INPUT POWER : 30W
- MAX. INPUT POWER : 50W
- DIMENSION NET : 190(W) X 326(H) X 287(D)mm
  SHIPPED : 450(W) X 386(H) X 335(D)mm
- WEIGHT NET : 3.6Kg
  SHIPPED : 7.5Kg (ONE PAIR WITH PACKING)

SCHEMATIC DIAGRAM



EXPLODED VIEW/PARTS LIST

NO.	DESCRIPTION		PART NO.	Q'TY.
1	GRILLE	R	224M351A	1
		L	224M351B	
2	HOLDER		324M060A	4
3	SCREW		353M050C	4
4	PANEL	R	258M094A	1
		L	258M094B	
5	SCREW		353M056D	2
6	TWEETER		541M060A	1
7	PIEZO		541M020A	1
8	SCREW		353M012C	4
9	WOOFER		541M130A	1
10	WOOFER RING		345M020A	2
11	CORD ASS'Y		561M042A	1
12	CABINET ASS'Y	R	211M048A	1
		L	211M048B